A Report of Proceedings

Meeting of USDA Soil and Water Conservation Advisory Committee

Washington, D. C. October 8 – 9, 1956

UNITED STATES DEPARTMENT OF AGRICULTURE

PROCEEDINGS AT MEETING OF

USDA SOIL AND WATER CONSERVATION ADVISORY COMMITTEE

October 8-9, 1956
Washington, D.C.

INDEX

ADVISORY COMMITTEE MEMBERSHIP

Chairman - Ervin L. Peterson, Assistant Secretary of Agriculture for Federal States Relations

Executive Secretary - Raymond W. Heinen, Soil Conservation Service

Members:

Leo L. Anderson, Managing Seedsman, Evergreen Seed Farm, Fargo, North Dakota
Earl T. Bower, officer, Wyoming Water Resource Board, Worland, Wyoming
R. Edward Baur, director, National Association of Soil Conservation Districts, Van Meter, Iowa
Dr. Firman E. Bear, retired chairman, Soils Department, Rutgers University, New Brunswick, New Jersey
Bill Durham, farm editor, Fort Worth Star Telegram, Fort Worth, Texas
Charles J. Elliott, member, board of directors, Illinois Agricultural Association, Streator, Illinois
L. W. Garver, chairman, Farm Equipment Institute, Soil and Water Conservation Committee, Racine, Wisconsin
L. Roy Hawes, Commissioner of Agriculture for the Commonwealth of Massachusetts, Sudbury, Massachusetts
T. R. Hedges, former chairman, Washington Association of Soil Conservation Districts, Waterville, Washington
Tom J. Hitch, president, Tennessee Farm Bureau Federation, Columbia, Tennessee
A. D. Holmes, Jr., Area vice-president, National Association of Soil Conservation Districts, Gallion, Alabama
Mrs. Katharine Jackson Lee, chairman, New Hampshire Natural Resources Council, Peterborough, New Hampshire
L. L. Males, secretary-treasurer, Washita Valley Flood Control Council, Cheyenne, Oklahoma
Raymond A. McConnell, editor, Nebraska State Journal, Lincoln, Nebraska
Wade Newbegin, president, R. M. Wade & Company, Portland, Oregon
William S. Rosecrans, chairman, California Board of Forestry, Los Angeles, California
Carl D. Shoemaker, conservation consultant, National Wildlife Federation, Washington, D. C.
Corydon Wagner, vice-president, St. Paul-Tacoma Lumber Company, Tacoma, Washington

All members were present except Mr. Shoemaker who had other commitments for this two-day period prior to the time the meeting dates for the Advisory Committee were set.

Monday, October 8

INTRODUCTORY REMARKS .... Assistant Secretary Ervin L. Peterson

Mr. Peterson introduced Mr. Corydon Wagner, the new member of the Advisory Committee replacing Mr. George Clyde who had resigned, and welcomed Mr. Wagner to the group.

He remarked that soil and water conservation is a very important area of USDA work. He asked members of the Committee for free and open comments on soil and water conservation problems as they see them throughout the nation during the course of the meeting.

He summarized progress in soil and water conservation since the last meeting of the Advisory Committee a year ago in the following manner. Technical assistance accomplishments are at a new high. Upstream watershed protection work has been stepped up. Progress is good on public lands and on national forests. The work of all agencies in USDA has, in one way or another, a relationship to the soil and water conservation work being done by farmers and ranchers on their land. The new Soil Bank program, which was enacted into law during the past year, has conservation aspects and will have an impact on soil and water conservation progress in the future. The forestry opportunities under the Soil Bank are distinctive. Increasing economic values give farm woodland owners an opportunity to move further into woodlot development.

The setting throughout the country for making conservation progress is as good as at any time since he has been familiar with it. The problems are how to move ahead more effectively and efficiently.

He reported that there were four items of carryover business from the 1955 meeting, and he requested the respective agency heads to report on these items.

RECORD OF DISCUSSIONS

GRASS AND TREE PLANT MATERIAL CENTERS ... D. A. Williams, Administrator
Soil Conservation Service

Mr. Williams commented that during last year's discussion of this item, the Advisory Committee had asked the Department to take another look at the conservation plant material activities to determine whether or not the current operations in this field were adequate. He reported that the Soil Conservation Service, with Assistant Secretary Peterson's assistance, had reviewed the program for operating plant material centers and had issued a new policy statement.

(for policy statement see page 20)

A comment of appreciation was expressed by an Advisory Committee member for these adjustments in policy.

CREDIT FOR SOIL AND WATER CONSERVATION PURPOSES... Kermit H. Hansen, Admin.
Farmers Home Administration

(for statement see page 23)

A question was asked as to whether FHA was able to get adequate funds to meet farmers' requests for loans with an interest rate of $3\frac{1}{2}\%$. It was pointed out that FHA can rely partially on appropriated funds and also has the authority to increase the interest rate by $\frac{1}{2}\%$.

Another question was asked as to whether any soil conservation districts had made loans with FHA for soil and water conservation work. It was pointed out that some districts have such loans.

The Chairman observed that there is a need for being certain that private loan resources are made available, also, for soil and water conservation work. He encouraged Advisory Committee members to look into the adequacy of private credit for such work in their areas. He expressed the view that private loans for soil and water conservation work should be encouraged so that the Government resources can be used only to fill in for those needs that cannot be met by private sources. It was observed that the State of Massachusetts has recently strengthened the State law in this respect.

PROGRESS IN THE GREAT PLAINS PROGRAM ..... D. A. Williams, Administrator
Soil Conservation Service

(for statement see page 25)

The Chairman commented that there is no more stubborn conservation problem in any area of the United States than in the Great Plains. The most significant effective development in USDA is that the various agencies are thinking and acting together to bring pressure on this problem. One-third of the agricultural production of the United States comes from the Great Plains area. It is very important for the long-time welfare of the

nation that essential land-use adjustments be made in this area. There is an enormous amount of work to be done. With the new Great Plains legislation and the Soil Bank added to the already going programs, there is hope for making real progress in the future. It was recognized that in the final analysis it is up to individual farmers and ranchers to take the lead in making land-use adjustments. The educational job of Federal agencies and other interested groups and organizations is big and important.

Question was raised as to whether the Soil Bank would help. It was observed that the Conservation Reserve of the Soil Bank offers a big opportunity to move ahead with needed land-use adjustments, but that is only one of several available tools. It was observed that in the blow area of Texas most interest in the Soil Bank was in the Conservation Reserve feature of it.

Question was raised as to whether the total Government cost of a 10-year program had been determined. It was noted that the Act sets an upper limit of $150 million, and that this is a supplement to going conservation programs. No one knows at this time the extent to which the program will be accepted by farmers.

It was observed that individual farmers have to have an income while land-use adjustments are being made. The Chairman observed the Conservation Reserve could be used to help maintain income. The annual payment for land under contract in the Conservation Reserve is intended to replace income from that land had it been cropped. The Great Plains program will offer cost-sharing assistance for applying practices. It will not provide for annual payments. The basic idea is that the farmer will develop a long-range conservation plan with the help of SCS technicians. Then he will need to determine what, if any, Government help he needs to implement that plan. That might be help in terms of credit from FHA or cost-sharing help from ACP or the Great Plains program, or the Conservation Reserve. The farmer will need to make his own determinations as to what programs he wants to use that are available to him. The Great Plains program itself is not intended to provide income. It is designed to help individual farmers do things needed to make their land produce better income. Its purpose is to help stabilize agriculture and maintain it.

It was observed that the most significant part of this program is that it authorizes for contracting with a farmer for help over a period of years. The most progress can be made in the good years because the time to establish cover is when it rains.

It was also observed that from a public relations point of view the great emphasis needs to be placed on assistance for action and that too much emphasis on research would be detrimental. Also, it would be a mistake to concentrate the program only in the southern Great Plains because the drought problem is spreading to the north.

SOIL AND WATER CONSERVATION RESEARCH ..... C. E. Wadleigh, Chief, Soil and Water Conservation Research Branch, ARS

(for statement see page 32)

It was observed that a far-reaching problem in watershed work has to do with the replenishment of underground water supplies. It was reported that the U. S. Geological Survey was conducting some research on the problem, but that it was a very difficult one to get at. It was further observed that part of the problem is to get water into the ground. If it gets into the ground, it will come out somewhere and benefit someone. It was suggested that heavy emphasis be focused on management measures to get water to infiltrate into the soil because wherever infiltration can be improved the results will be beneficial.

Comment was made that there is urgent need for a regional laboratory in the Pacific Northwest to do intensive research on water runoff and erosion on the highly productive soils of that region. It was reported that adequate funds are not available at this time for such a laboratory.

Emphasis was also given to the need for more basic research in soil and water conservation. It was noted that much of the work in this field being done at the Land Grant Colleges was on short-term projects. It was suggested that USDA have a long-range plan for such basic studies so that they can have continuity.

Mr. Peterson commented that the Department is giving intensive study at the present time to the long-range needs for research and to the soil and water conservation needs of our land resources to see what the problems are. After the problems are in focus they can be looked at in terms of budgets to see what can be done about them. He commented that in the past, budgets have been built like patching a pair of pants, while what is needed is to make a new pair of pants.

Question was raised regarding the benefits of supplemental irrigation in crop production. It was observed that farmers are coming more and more to realize that it is not a question of will there be drought, but when will drought conditions occur. With some crops under some conditions it has been found that supplemental irrigation can be profitable, but under other circumstances it is not economically sound. The success of supplemental irrigation can be only determined for particular situations and generalizations are most difficult to make.

The Chairman indicated that during the past year there have been numerous new developments in soil and water conservation activities and he requested respective agency representatives to report on these items.

REVIEW OF SOIL AND WATER CONSERVATION NEEDS INVENTORY ...Gladwin E. Young
Deputy Administrator,
SCS

A review was made of the administrative instructions from the Secretary of Agriculture for conducting a national inventory of soil and water conservation needs dated April 10, 1956.

(for instructions see page 38)

Question was raised as to the appropriateness of assumption 13 "Public programs of assistance to soil and water conservation will be continued at about the present level."

It was the consensus that this item was an inappropriate assumption and it was recommended that it be deleted from the final version of this policy statement.

Mr. Peterson commented that this soil and water conservation needs inventory is a pioneering effort. Similar efforts have been done in other fields, such as the forest resource review, but this is the first coordinated effort in the field of soil and water conservation. It is expected that State and local units of Government will be able to make use of the data which will be assembled. If such agencies have need for more comprehensive data, they could go ahead and use what is assembled from this inventory and add to it.

The observation was made that the data assembled by this soil and water conservation needs inventory would be real help to local soil conservation districts in implementing their programs.

REVIEW OF SOIL BANK PROGRAM ... H. J. Doggett, Director, Soil Bank Division
Commodity Stabilization Service

The Soil Bank is a major national effort to reduce the flow of surplus commodities into Government and non-Government storage. It is aimed primarily at a reduction of surplus crops that are clogging our markets. It has as its secondary objective conservation features for bringing about needed land use adjustments.

The Acreage Reserve is a temporary program to reduce production of wheat, cotton, corn, rice, tobacco and peanuts. It is an annual offer that amounts to a means of leasing back to the Government a part of the acreage allotments that have been assigned to farmers. The 1956 Acreage Reserve Program could not be started until after the planting season was passed. Therefore, it is not typical of what we can expect in the future.

The Conservation Reserve is a long-range program, open to all farmers regardless of the crops they grow. It will give new force and permanence to soil, water, and forest protection work.

Land brought into the Conservation Reserve will be the less productive acres that should be taken out of crop production permanently in the interest of better conservation. Many acres diverted in the past from wheat and cotton to feed grains and other crops will be put into the Conservation Reserve.

Through the Conservation Reserve, farmers can receive substantial aid and compensation while giving protection to the food-producing resources of the nation. Instead of being depleted in the production of surplus commodities, the soil and water resources on their farms will be conserved for a larger population needing increased supplies of food, fiber, and timber.

As the total Soil Bank program gets into gear and farm prices go up, there will be great pressures to break long-term contracts in order to put Conservation Reserve land back into crop production. Therefore, we believe that we need to have tight contracts with farmers.

Question was raised as to whether the annual rates, which average $10 per acre under Conservation Reserve contracts, would be high enough to attract much land into the Conservation Reserve. It was observed that the answer to this question could only be determined after operating experience. These rates vary from $7 to $13 per acre in various States and there will be variations within individual States. They were determined to be at a level to pay taxes and interest and leave a fair return. The total amount authorized for the Conservation Reserve program is $450,000,000 annually. If the current rates prove to be too low to attract land into the Conservation Reserve, it may be necessary to consider raising the rates. The purpose is to reduce the agricultural production plant without reducing farm income.

There was discussion about planting trees on the Conservation Reserve. It was explained that the policy has been established that the length of contract where trees are to be established is to be 10 years after the trees are planted. In the event that an individual wants to sign a contract now, but tree seedlings are not immediately available, that individual will have a contract for 10 years plus the period of time from when he signed up until trees become available and planted.

Since the Conservation Reserve will create a heavy demand for tree seedlings, question was raised as to the place of private enterprise in an expanding tree seedling business.

It was explained that it appears that the demand for tree seedlings would be double current production if 5 million acres should be planted to trees. There will be a tree seedling shortage next spring because it takes a period of time to grow tree seedlings. Tree production will not be stepped up in Federal nurseries. The Department will look to the State Foresters to try to get enough nursery production to meet demand. The State Foresters will contact private industry to see how much of the demand they can supply. A meeting is being held later this week in the Great Plains area with representatives of the Department, State Forestry agencies, and private nurserymen to examine this very problem for the Great Plains States.

It is the Department's policy to look to commercial companies for tree seedling production when they can supply them. One problem, however, has to do with price because State nurseries can grow trees cheaper than private industry. State Foresters are currently planning to expand their tree seedling production.

The Chairman pointed out that Title IV of the Agricultural Act of 1956 has provision for a tree planting program which will carry on after the Soil Bank program has ended. The Department of Agriculture will not run a program for tree seedling production competitive with private enterprise.

Comment was made that one big problem throughout the country is misunderstanding about the Conservation Reserve part of the Soil Bank, underscoring the problem of getting the elected farmer committee system fully informed on the program so that it can be successful.

Question was raised as to why there is a $500 limitation on constructing water storage facilities. The answer was given that the purpose of the program is to divert acreage from crop production, and without a limitation, too much of the available funds would be diverted from this primary purpose.

Question was also raised as to why fencing of forest lands could not be a part of the cost-sharing under establishing forest lands. The answer was given that it is expected that demand for Conservation Reserve funds will be in excess of the authorized level without paying for fencing. It was observed that the individual farmer would have to review the offer under the Conservation Reserve and decide whether he wants to place land into the Soil Bank.

Advice was requested as to whether species eligible for vegetative cover on Conservation Reserve land should be limited to perennials. There was an expression of opinion regarding both annuals and perennials and one member of the Committee offered to give formal advice if the question could be given to him in writing. His address has been given to Mr. Doggett.

REVIEW OF AGRICULTURAL CONSERVATION PROGRAM FOR 1957..P. M. Koger, Admin. ACPS

(for statement see page 44)

Comment was made by a Committee member that the ACProgram is currently being operated in the field in cooperation with soil conservation districts. Cooperation is good and has resulted in much more conservation being applied with ACP cost-sharing funds. Emphasis was given to the need for increasing the amount of ACP funds used for cost-sharing on permanent practices. The Chairman indicated that the Department is continuing to move in that direction.

The Chairman asked for comments on the wildlife situation in the pothole country of the Dakotas and Minnesota.

A member of the Committee from that section of the country reported that the pothole problem is being talked a lot, especially by people concerned with promoting wildlife. They are almost fanatical on the subject. He can see both sides of the problem because he is concerned with farming and he goes duck hunting.

Potholes are a nuisance in crop fields. The farmer has to farm around them or get stuck with his machinery early in the season. Many farmers have drained potholes in recent years. Some that have been drained may have reduced the duck population. Others, however, have been beneficial to duck habitat because often two or three small potholes are drained into one big one making more area for ducks.

There is a farmer side to the question that must not be overlooked. They own the land and are making their living from it. They have gone ahead with programs they feel are beneficial. Farmers, too, are becoming quite exercised over the controversy. It may result in many of them posting their land against hunting.

The opinion was expressed that SCS is doing right in the way it is currently approaching the problem. They recognize both the wildlife and farmer interests and the work in total is actually contributing more to wildlife habitat than it is detracting from it.

PROGRESS WITH SOIL SURVEYS ..... C. E. Kellogg, Assistant Admin. for Soil Survey, SCS

(for statement see page 51)

There was considerable discussion of the extent to which good agricultural land is being diverted to non-agricultural uses in various parts of the country. It was noted that a lot of people were concerned about this problem but that the trend has not been changed. The view was expressed that one approach might be for the Federal Government to establish a board to determine what land should be taken out of agricultural use for use by the Federal Government when alternative lands are available for such use. Likewise, State Governments might establish similar boards for making determinations on a State basis. Point was made that an appropriate place to begin would be at the Federal Government level. The Chairman pointed out that some informal discussions along that line are already going on in the Federal Government, with the Department of Agriculture taking the leadership.

The Committee recognized that a serious long time hazard to future agricultural production could result from the continued rapid conversion of highly productive agricultural land to urban and other non-agricultural uses. It was the consensus that all appropriate measures should be

taken by the Department of Agriculture to inform all the people of the nation as to the nature of the problem. It was recommended that, as a first step, the Department of Agriculture take leadership in calling attention to the executive and legislative branches of Government the need for establishing a suitable mechanism to prevent non-agricultural use or appropriation by the Federal Government itself of soils well suited to farming except where no reasonable alternatives exist.

Question was raised as to what factors would limit a speed up in soil survey work. It was observed that although qualified people are in short supply, competent men are available and can be obtained with aggressive recruitment. Premium pay has been authorized by the Civil Service Commission for some scientific fields. Students have a tendency to specialize in those sciences which are on the premium pay list. So long as soil science is not on the premium pay list it will have a bearing on the number of graduates in soil science. Efforts have been under way for some time to have soil science added to the premium pay list.

It was also observed that in States where a substantial amount of State resources is devoted to cooperative soil survey work, that the work is making the most progress. While the additional resources are helpful, there is more to it than that. It results in a greater interest in the work which is a big factor in rate of progress.

Mr. Peterson pointed out that the President's Water Policy report carried a statement on the importance of completing the national soil survey as a part of national water policy. This is considered highly significant because when the time comes for a needed increment in agricultural production, water will be the primary limiting factor.

The Committee took note of the fact that the legislative and executive branches of Government recently recognized the need for an early completion of the soil survey of the rural lands of the country. They noted current progress and observed that many costly private and public programs and facilities depend upon having accurate soil survey data. The Committee recommended that every possible step be taken to speed up the soil survey as rapidly as possible consistent with sound and dependable results.

STATUS OF RURAL DEVELOPMENT PROGRAM ... P. V. Kepner, Deputy Administrator, FES

(for statement see page 54)

The Chairman pointed out that here was opportunity for concentrated help in three categories: (1) operators of small farms who spend their full time operating their land, (2) operators of small farms who spend part of their time operating their land and part of their time on off farm jobs, and (3) operators whose farms are too small and need help to get more land and expand the size of their operating unit.

It was also pointed out that the congressional appropriations for the Rural Development Program gave greatest emphasis on increasing the availability of credit. The view was expressed that while credit is important it should not be forced on people until it has been determined that credit will lend a solution to their problems.

It was also observed that one county found in reviewing the situation a surplus supply of labor, after which industry became interested in moving into a county to utilize that labor supply. The spread of industry into these rural communities offers many opportunities for rural development.

Mr. Peterson announced that it would be impossible for him personally to serve as Chairman on the second day because of a conflicting meeting in Chicago of the President's Commission on Increased Industrial Uses of Agricultural Products. He asked Mr. D. A. Williams to serve as Chairman for the second day of the meeting.

He suggested that before the meeting was over he would like for members of the Committee to express their views as to future meetings. He asked whether they would like a longer meeting with more time for round table discussions. He also asked for their appraisal of an agenda for future meetings. He recognized that the agenda for this meeting was very full and involved a lot of talking on the Department's part. He said he hoped there would be opportunity for them to express their views because the Department needs the appraisal of Committee members on how they see Department programs operating in their home communities. He expressed his deep appreciation to Committee members for the time and effort they are giving to this vital work and re-emphasized the importance for the Department to have the benefit of their good judgment and advice.

The meeting was adjourned until the next morning.

Tuesday, October 9

Mr. D. A. Williams served as Chairman. Under Secretary True D. Morse spoke to the Committee and expressed the regrets of Secretary Benson that it was necessary for him to be out of town during these two days which made it impossible for him to meet with the Committee. He said that he is looking forward to a review of the Advisory Committee's deliberations.

The Under Secretary reported on progress in the Rural Development Program, which had recently been reported to the President. He said a reporter asked if this program meant that more people would have to leave the farm and he replied that, to the contrary, the Rural Development Program offered opportunity for more people to live on small farms.

He told about a study made outside of Tulsa, Oklahoma, which revealed that half of the farms were small farms. They averaged 67 acres in size with an average of only 8 tilled acres per farm. About 42% of the operators of these small farms are working more than 100 days a year at jobs off their farms. He commented that as employment opportunities in industry are dispersed throughout the land more people can work in industry and live on farms.

He asked Committee members for any ideas they may have for handling the drought situation. He said the big problem is due to bad sub-soil moisture conditions that have resulted in livestock producers running out of water for their livestock. Because of these and other pressing matters it was necessary for him to leave the Committee deliberations in the hands of the acting Chairman.

UPSTREAM WATERSHED PROTECTION AND FLOOD PREVENTION

A presentation was made by Advisory Committee member L. L. Males of the watershed protection installations on Sandstone Creek in Oklahoma, which is a stream in the Washita Watershed (one of the 11 authorized flood prevention projects). Colored slides of scenes in the watershed were viewed that depicted the problem before watershed protection works were installed and showed the progress that had been made in solving soil and water problems on individual farms and entire communities.

The Chairman commented that this was an excellent presentation of the watershed story. Problems may vary from one part of the country to another but in every instance there is a combination of water, soil, and people. The work in upstream watershed protection is involved with proper combinations of the water, soil and people for the betterment of individual farmers and entire communities. It is democracy in action in America.

Question was raised as to the cost of applying such a program. It was pointed out that farmers apply the land treatment measures, furnish the easements and rights of way for structures, and maintain them. In total the local community pays more than half of the costs. The Federal Government costs on Sandstone Creek have amounted to about $1 million. This area was in the dust bowl in the 1930's and there was soil blowing every year during that drought. This area is now in its fifth year of serious drought, which is worse in severity than the drought of the 1930's. During the current five-year period of drought, there has been no soil blowing. These improvements have made for a much more prosperous community.

Question was raised as to whether local people were going ahead with similar work on other streams. It was reported that interest is high and that many applications for assistance in such projects have accumulated. Progress with actual application work, however, is slow because appropriations for Federal assistance are inadequate.

Question was raised as to how long it will take to do this kind of a job across the country. The Chairman indicated that there may be as many as 8,000 small watersheds across the country that could benefit substantially from watershed protection work. If the local people in that many communities wanted to go ahead with such works of improvements, the Federal Government's share of the job could run to as much as $4 or $5 billion.

It was observed that the people of the nation are supporting multibillion dollar programs for highway improvement and schools. There is need for them to also support a multibillion dollar program for soil and water conservation and watershed development. It was pointed out that there is desperate need for intensive effort to get people in the city to appreciate the water they drink and where it comes from.

The Chairman indicated that the remaining items on the agenda all had a direct bearing on this subject and suggested that these items should all be presented after which the Committee members would be in a better position to return to these discussions.

PROGRESS IN AUTHORIZED FLOOD PREVENTION WATERSHEDS, PILOT WATERSHEDS, AND PUBLIC LAW 566 .....Carl B. Brown, Director
Planning Division, SCS

(for statement see page 56)

REVIEW OF THE PRESIDENT'S WATER POLICY REPORT ... G. E. Young, Deputy Admin.
SCS

Copies of the Report by the Presidential Advisory Committee on Water Resources Policy were distributed to Committee members. The following points were highlighted.

1. The President has submitted this policy report to the Congress and commended it to them. It is a most important document in terms of a national water policy for all agencies in the executive branch of the Government.

2. The basic elements of a sound policy relating to water are clear. That policy must look toward an adequate water supply for our people, prevent waste of water, provide for a greater re-use of water, reduce water pollution to the lowest practicable level, provide means for the useful and equitable distribution of available water supply, and take steps to check the destructive forces of water which threaten to injure or destroy land, property, and human life.

All areas of government have evinced wide interest in these problems. Municipalities, States, and their public agencies, as well as the Federal

Government, should take steps to alleviate their particular hazard or anticipate their needs.

Because these problems are nationwide, it is appropriate that the Federal Government take cognizance of them and provide leadership for solving them by establishing sound nationwide policies, as well as provide standards for its own participation in the development of economically sound water projects. It is also appropriate that this be done in cooperation with the States and other locally interested parties.

3. The principles governing cost sharing of water resources projects were recommended as follows:

a. Identifiable beneficiaries should pay an appropriate share of the cost of projects. In most instances direct identifiable beneficiaries should pay a larger share of the cost for benefits received than they now do.

b. The non-Federal share of the cost should be collected from beneficiaries by non-Federal agencies on the basis of an equitable assessment in accord with legal machinery to be established as needed by the non-Federal agencies.

c. Where local governmental or private organizations cannot adequately meet the appropriate non-Federal share of the cost, State governments should participate in sharing the cost of projects. This could be accomplished through assessment of identifiable beneficiaries.

d. Responsibility for bearing the cost of maintenance and operation of Federal projects and for their management should be turned over to non-Federal interests as soon as it is soundly feasible in consideration of the Federal investment.

e. The cost of providing vendible products or services should be repaid in full by the sale of those products or services.

f. All Federal agencies should use a uniform approach to cost sharing so that the division of costs between the Federal Government and non-Federal interests for any particular project would be the same regardless of the agency undertaking the project.

SOIL AND WATER CONSERVATION ACTIVITIES ON FOREST LANDS ... R. E. McArdle
Chief, FS

(for statement see page 70)

It was observed that Soil Conservation Districts have done a lot of work on woodlot development on private land. Districts have appreciated the

help they have had from the Forest Service and the State Foresters. District cooperators have planted more than 3,500,000 acres of trees. More than 1,000 Soil Conservation Districts own their own tree-planting equipment which is used by District cooperators in tree planting. More than 50 Districts have their own tree nurseries and grow the tree seedlings needed to meet the needs of District cooperators.

It was pointed out that the Forest Service contact with private land owners is through other agencies such as State Foresters, Soil Conservation Districts, Extension Foresters, SCS, and ACPS. It was also pointed out that only 1/3 of 1% of the ACP cost sharing funds are spent on tree planting.

Question was asked as to whether the Forest Service had formal memorandum of understanding with Districts for public lands managed by the Forest Service. It was pointed out that they did not, except for a few pilot watersheds, because the Forest Service works through State agencies and the big job is to fit together the varied conflicting interests on public lands.

It was suggested that the subject of tree planting on private land be placed on the agenda for the next meeting of the Advisory Committee.

It was observed that to double the production of tree seedlings for Soil Bank purposes was going to be an enormous job. It was also suggested that there is need for a concrete long-term objective on tree planting and that the objective should include provision for private nurserymen to play a dominant role in producing planting stock. It should also include provision for tree planting on private lands through Soil Conservation Districts with technical help from SCS.

WILDLIFE ACTIVITIES IN SOIL AND WATER CONSERVATION ..... L. V. Compton
Biologist, SCS
L. W. Swift
Biologist, FS

(for statements see pages 72 & 74)

It was observed that the development of water impoundments in Soil Conservation Districts in the Dakotas is one of the outstanding contributions to wildlife in the country.

Question was raised as to the extent that SCS is working with wildlife interests in the watershed program. The Chairman reported that funds appropriated for the watershed program have been transferred to the Fish and Wildlife Service to be sure that wildlife values are taken into account by the local sponsoring organization. A memorandum of understanding has been developed between the USDA and the Fish and Wildlife Service. Watershed projects that are over $250,000 in size of Federal contribution to

construction costs are reviewed by the Fish and Wildlife Service. In some areas wildlife interests take an active part in planning watershed projects and in other areas they show less interest.

A fear was expressed that wildlife interests may expect more public wildlife benefits from watershed projects than can be realized from projects on private land. The view was also expressed that if public access was to be a requirement for ponds built on private land, much interest would be lost in going ahead with watershed projects.

There was considerable discussion as to the extent of State wildlife agencies' participation in watershed planning. It was the consensus of the Committee that a representative of the appropriate State agency responsible for wildlife and recreation should be encouraged to attend meetings for development of work plans for watershed protection projects, and it so recommended.

There was considerable discussion of the controversy that has developed with wildlife interests over the drainage policies of the Department, specifically with respect to cost sharing under the ACProgram and technical assistance from SCS. It was the consensus of the Committee that the appropriate State fish and game departments should be encouraged to participate in the development of ACP and Soil Bank conservation practices, and it was so recommended.

GENERAL DISCUSSIONS

The Chairman invited Committee members to make any general statement of a point of view they might want to get before the Committee. Dr. Bear indicated that he had such a prepared statement but that due to the amount of subject matter on the agenda, he would not take time to read it. Instead he asked that it be reproduced in the Proceedings. The statement expresses the personal views of Dr. Bear. It did not have committee consideration.

(for statement see page 77)

The Chairman asked if there were other Committee members who would like to present a statement. Mr. Rosecrans indicated that he would like to make a statement about the urgent need for getting city people to better appreciate the water resources of the nation and what these resources mean to them. He indicated, however, that he did not have a prepared statement, but that he would like to prepare one recommending that the Department issue some kind of informational material on the subject directed to city people that could be used in a variety of ways such as industrial advertising.

This stimulated considerable discussion on the need for getting city people better informed about water resources. It was observed that there is need for stepping up informational activities on several fronts with

respect to soil and water conservation. It was also observed that millions of words have been written about the importance of water resources to city people, but they do not pay much attention to it until they run out of water. An example was given of drought stricken Dallas, Texas where good drinking water currently costs more than milk and the city people have become concerned about water resources.

Committee members were of the opinion that there is an urgent need for developing with urban people a fuller understanding of the critical significance of water resources to their daily living and the relationship of protecting and improving watersheds as the source of their water supply. It was the consensus of the Committee that the Department of Agriculture should take special measures through various informational media to develop urban understanding and appreciation of water resources, and they so recommended.

A strong plea was made for setting forth concrete objectives for positive action for moving forward more rapidly with watershed protection and soil and water conservation. A need was expressed for spelling out USDA objectives for the total conservation effort with schedules of time and for determining budgets on the basis of those objectives and schedules.

It was observed that the speed with which watershed protection and soil and water conservation work could be stepped up depends on how much the nation can afford to spend on such work. It was further observed that this Advisory Committee is representing one of the most important problems in the United States. One major problem is that not enough people know that the soil conservation movement has learned how to crawl and is now able to get up and walk. Experience has been gained in how to proceed with watershed protection work. It was observed that the people know how to do it but they are being held back by small budgets for Government assistance. The view was expressed that this work is not being approached realistically in budgets by the Department and the Bureau of the Budget.

Under Secretary Morse commented that the Department is sympathetic with this work but it is necessary to work with the resources that are available. He reported that the various committees that are advisory to the Department are recommending increased expenditures for Department work they are most interested in. National affairs have to be operated on a Federal budget, he said, and that budget has to support many types of work. He said that educational people think more effort should be concentrated on working with human resources, educating the youth. Soil, water, and forestry all need more emphasis. Important new legislation has been enacted during the past four years such as the Soil Bank and Public Law 566. These new programs have further complicated the budget picture. He raised a question as to how much of this work is a responsibility for State government and for farmers and how much should be the responsibility of the Federal Government.

Question was raised as to how budget determinations are made for resources development, i.e., how is "the pie cut" to determine budgets for the resource development activities of the Corps of Engineers, the Department of the Interior, and the Department of Agriculture. The view was expressed that these various items are out of balance in the total budget. It was requested that Assistant Secretary Peterson furnish Committee members with a statement, for their use only, prepared by the USDA and the Budget Bureau outlining the budget procedures for all resource development agencies such as USDA, the Corps of Engineers, and the Department of the Interior.

The view was expressed by some Advisory Committee members that the budgeting process was beyond the scope of this Advisory Committee.

The Chairman asked Committee members for suggestions for future meetings of the Committee. The view was expressed that to best give advice, meetings should either be held oftener or for a longer period of time because it takes a full two days to bring Committee members up to date. Several members expressed the view that at the close of the meeting they were informed to the point where an additional day might profitably be spent on a round table discussion. Another suggestion was made that the Committee might be more helpful if they were called to meet two or three times a year. It was suggested that consideration might be given to breaking up into subcommittees to give consideration to specific questions. The view was also expressed that many Committee members would like to have an opportunity to present a prepared statement of their thoughts that they would like to share with other members of the Committee.

It was suggested that the agenda for the next meeting might be developed around the long-range objectives of the Department for soil and water conservation. It was requested that an item regarding State water laws be included to determine how some uniformity among States on such laws might be developed.

The Chairman expressed the Department's appreciation to individual members of the Committee for the contribution they had made during the 2-day meeting. He assured them that their discussions had been very helpful and he thanked them for taking the time and effort to attend.

Adjourned.

DIGEST OF ADVISORY COMMITTEE RECOMMENDATIONS

*** That all appropriate measures be taken by USDA to inform all the people of the nation that a serious longtime hazard to future agricultural production could result from the continued rapid conversion of highly productive land to urban and other non-agricultural uses.

*** That, as a first step, USDA take leadership in calling attention to the Executive and Legislative branches of government the need for establishing a suitable mechanism to lessen non-agricultural use or appropriation by the Federal Government itself of soils well suited to farming, except where no reasonable alternative exists.

*** That every possible step be taken by USDA to speed up the Soil Survey as rapidly as possible, consistent with sound and dependable results.

*** That USDA take special measures through various informational media to develop urban understanding and appreciation of the Nation's water resources.

*** That the statement "public programs of assistance to soil and water conservation will be continued at about the present level" be deleted from the final version of the USDA policy statement for conducting the National Inventory of Soil and Water Conservation Needs.

*** That USDA maintain a long-range plan for basic research in soil and water conservation so that such studies can have continuity.

*** That USDA give special emphasis to research on soil and water management measures which will increase the infiltration of water into the soil.

*** That USDA encourage the appropriate agency of State Governments responsible for wildlife and recreation to have their representative attend meetings for the development of work plans for watershed protection projects.

*** That USDA encourage the appropriate State Fish and Game Departments to have their representatives participate in the development of ACP and Soil Bank conservation practices.

SOIL CONSERVATION SERVICE
POLICY CONCERNING PLANT MATERIALS CENTERS (NURSERIES)

Many kinds of plant materials--grasses, legumes, shrubs and trees--are required to meet the needs of landowners and operators when treating their land for conservation purposes. Experience has shown that many of the needed plant materials for satisfactorily carrying out farm, ranch and watershed conservation plans are not available commercially or from publicly supported agencies. There are plant materials available from plant introduction centers, from the research plant breeders, and in their native habitat which seem to have promise for conservation use. In nearly all cases the supply is too small for adequate evaluation, the range of soil and climatic adaptation is unknown, and in many cases the cultural practices for field establishment have not been developed. Plant materials centers provide a location for effectively supervising and systematically conducting necessary observations and evaluations of plant materials at the least cost.

It is recognized that soil, climate, and conservation use of vegetation vary widely in the United States. The Plant Growth Regions of the United States provide a basis for determining suitable locations for needed plant materials. One center may sometimes serve more than one Plant Growth Region and in other Plant Growth Regions the need for new or improved planting materials may be minor. In a few Plant Growth Regions the needs for conservation planting materials are being met by the trade or from other sources.

IT IS THE POLICY OF THE SCS TO PROVIDE FOR ONLY THOSE PLANT MATERIALS CENTERS NEEDED TO SUPPLY PLANT MATERIALS FOR OBSERVATIONAL PLANTINGS, THE ADAPTATION AND USE OF WHICH FOR CONSERVATION PURPOSES ARE UNKNOWN OR INADEQUATELY KNOWN.

IT IS THE POLICY OF THE SCS TO PRODUCE ONLY THE AMOUNT OF MATERIALS NEEDED FOR OBSERVATIONAL PLANTINGS TO DETERMINE SOIL AND CLIMATIC ADAPTATIONS AND CONSERVATION USES. WHEN THESE ADAPTATIONS ARE KNOWN, THE SCS WILL ENCOURAGE COMMERCIAL SEED PRODUCERS AND NURSERIES TO ASSUME FULL RESPONSIBILITY FOR LARGE SCALE PRODUCTION AND DISTRIBUTION. The Service will not produce planting materials for general distribution and will produce only the amounts needed for observational plantings and to facilitate the introduction of proven materials into trade channels through Crop Improvement Associations and known seed producers. The observational planting program will be conducted cooperatively with soil conservation districts and in most cases the plot and field plantings will be on the farms or ranches of district cooperators. Plant materials will also be made available to cooperating experiment stations, school farms and State institutional farms for observational plantings. Numerous grasses, legumes and shrubs are now available through trade channels that were first evaluated at a Soil Conservation Service plant materials center

followed by observational plantings on farms and ranches. The center will not be concerned with the growing of planting materials which are established in trade channels.

The work performed by SCS plant materials centers is not intended to be competitive with the development of new plant varieties and materials accruing from the work of State Experiment Stations. Recommendations by SCS for the use of plants and shrubs as conservation materials for general use will be made known to State Experiment Stations prior to general distribution of such recommendations in order that there may be the closest of cooperation between the two types of operations--that of SCS plant materials centers and that of the State Experiment Stations. SCS will not at its plant materials centers produce commercial forest tree planting stock.

IT IS THE POLICY OF THE SCS TO USE THE TECHNIQUES OF OBSERVATION, SELECTION AND EVALUATION IN ITS WORK AT PLANT MATERIALS CENTERS. Plant breeding and hybridization, on the other hand, are recognized research techniques and are the responsibility of the technicians of research agencies. In many instances improved varieties resulting from the fixation of desirable characteristics by the plant breeder or promising hybrids are made available to SCS plant materials centers for observational plantings to determine their soil and climatic adaptations, the cultural practices necessary to their establishment and their conservation uses. The work at the centers with grasses and legumes will ordinarily include the following:

1. Assembling promising plant materials.
2. Planting in rod rows for observation--may be necessary to start in hot house or cold frame.
3. Selecting the plants in the rod row planting of the greatest vigor and having the most desirable characteristics for conservation use for seed harvest.
4. Planting seed from selected plants in plots for seed increase and continuing evaluation.
5. Determining cultural practices by varying the treatment of the plots used for seed increases.
6. Increasing the seed supply to the amount needed for field observational plantings.
7. Supplying seed to crop improvement associations and known seed growers to get the seed moving in trade channels.
8. Maintaining temporarily, on request of the Crop Improvement Association or the State Experiment Station, small foundation seed plantings.

Note: The handling of woody planting materials at the centers will follow the steps outlined above with appropriate variations in techniques, except that the centers will not produce commercial forest tree planting stock.

THE STATE CONSERVATIONIST OF THE STATE IN WHICH A CENTER IS LOCATED IS RESPONSIBLE FOR ITS OPERATION OR FOR THE COOPERATIVE ARRANGEMENT IF IT IS OPERATED BY A STATE AGENCY. In all cases the State Conservationist is responsible for effective working relationships with the State Experiment Station, State Conservation Department and other interested Federal, State and local agencies and organizations. In appropriate instances, the working arrangements will be set forth in Memoranda of Understanding. This is mandatory if the center is operated by a State agency or organization and financed wholly or in part by the Service.

The Service will operate the following plant materials centers:

Beltsville, Maryland
Elsberry, Missouri
Pullman, Washington
Pleasanton, California
Aberdeen, Idaho

As long as satisfactory arrangements can be maintained, the Service will continue to enter into memoranda of understanding with appropriate groups for the management of the following plant materials centers:

Americus, Georgia
Big Flats, New York
Spur, Texas
Manhattan, Kansas
Scottsbluff, Nebraska
Bismarck, No. Dakota
Tucson, Arizona

If satisfactory arrangements can be made, plant materials centers will be maintained in cooperation with suitable State agencies or operated by the Service at locations to be determined in the following areas:

Southern Florida
Central Michigan
Northern New Mexico
Western Oregon
Hawaii

Signed July 16, 1956
By D. A. Williams
Administrator
Soil Conservation Service

Approved by Assistant Secretary of Agriculture
E. L. Peterson on July 19, 1956.

CREDIT FOR SOIL AND WATER CONSERVATION PURPOSES

Kermit H. Hansen, Administrator
Farmers Home Administration

Credit for soil and water conservation purposes is available to farmers and ranchers under several of the statutes administered by the Farmers Home Administration. They are the Bankhead-Jones Farm Tenant Act, the Water Facilities Act as amended by Public Law 597 in 1954, and the recently enacted amendments to the Watershed Protection and Flood Prevention Act. Although a high percentage of the real estate loans made under the Bankhead-Jones Farm Tenant Act includes funds for land improvement and water development purposes, the lending authorities in the latter Acts are specifically designed to help farmers and groups of farmers to finance soil and water conservation measures.

The Water Facilities Act of 1937 was changed in several significant respects with the passage of Public Law 597 by the 83d Congress. Until this law was passed, the Act was applicable only to 17 Western states and provided authority only for financing the development and use of water for irrigation and farmstead purposes. With the passage of Public Law 597, this authority was extended to the entire United States and the loan purposes were broadened to include loans for the purpose of paying the cash costs for materials, supplies, equipment, and services directly related to the application or establishment of soil conservation practices; drainage; establishment and improvement of permanent pasture; reforestation; and similar conservation practices. Public Law 597 further amended the existing law by increasing the size of loan to incorporated associations from $100,000 to $250,000. The law also provided authority for insuring loans made with funds provided by private lenders up to $25,000,000 annually.

To be eligible for a soil and water conservation loan, a farmer must have sufficient experience or training to indicate that he had reasonable prospects of conducting a successful farming operation and be unable to obtain the necessary credit on reasonable terms and conditions from private and cooperative sources. Nonprofit associations such as incorporated water associations, mutual water and drainage companies, irrigation and drainage districts, and soil conservation districts also must be unable to obtain adequate credit elsewhere in order to qualify for a loan and, in addition, must be primarily engaged in extending to its members services directly related to soil conservation, water conservation and use, or drainage of farm lands.

The soil and water conservation loans are scheduled for repayment within the shortest period consistent with the ability of the borrower to repay. In case of a loan to an individual, the maximum repayment period is 20 years. Loans to an association may, if necessary, be amortized over periods up to 40 years. Each borrower will be required to refinance the unpaid balance of his loan when he is able to obtain a loan at reasonable rates and terms from other sources.

Applicants are expected to obtain whatever engineering assistance they need from the Soil Conservation Service, Extension Service, or other agencies, individuals or firms. Technical assistance of this type from the Farmers Home Administration is limited to a review of the engineering plans and inspections necessary to assure that loans are used for authorized purposes and that the construction carried on with loan funds meets required standards. Additional assistance on planning farming operations is extended to Farmers Home Administration borrowers to the extent they need such assistance to be successful.

During the first full year of operation under the new authority, namely, fiscal year 1955, loans totaling about $15.5 million were made to individuals. Of this amount, about $13.8 million was loaned for water development and use, about $1.4 million was used by farmers to finance conservation practices, and about $0.3 million was loaned for drainage.. During the 1956 fiscal year, loans to individual farmers declined to a little more than $10 million. The amount borrowed for soil conservation measures and drainage remained at approximately the same level as the previous year, but the amount advanced for irrigation and water development purposes declined to a little less than $9 million. Most of this decrease occurred in Southern states.

Reports from the field offices of the Farmers Home Administration indicate that farmers who would otherwise be eligible for assistance are reluctant to borrow for soil and water conservation purposes. The reasons they gave generally reflected an attitude that under existing conditions soil and water conservation practices should be developed essentially on a pay-as-you-go basis. More specific reasons included references to such considerations as the fact that it had not been customary for them to borrow funds for such purposes, they already were indebted and did not wish to assume further obligations, and the existing price-cost relationships.

The most recent lending authority of the Department in the area of soil and water conservation is under the Watershed Protection and Flood Prevention Act, as amended by the Act of August 7, 1956 (Public Law 1018, 84th Congress). Under that Act, the Secretary of Agriculture is authorized to give technical and financial aid to local organizations in planning and carrying out watershed projects for flood prevention, agricultural phases of water management, and other purposes such as municipal and industrial water suppliers. Loans under the Act may be made to local organizations such as soil and water conservation districts, irrigation districts, flood prevention or control districts, municipal corporations, or other agencies having authority under State law to carry out, maintain and operate works of improvement and to borrow money and repay loans for the installation of such improvements. The planning and engineering phases of this program are primarily the responsibility of the Soil Conservation Service. The Farmers Home Administration's responsibility is the making and servicing of loans to finance facilities directly associated with carrying out the objectives of the Act.

PROGRESS IN THE GREAT PLAINS PROGRAM

D. A. Williams, Administrator
Soil Conservation Service

Soil and water conservation problems in the Great Plains was one of the subjects given major consideration at last year's meeting of the Advisory Committee. You will recall that we had quite a comprehensive discussion of the wide variety of matters that need to be involved in a successful long range program for the Great Plains area. The discussion was centered largely around a report of a conference held on this subject in Denver in June of 1955. It was the concensus of the committee members at that time that recommendations of the Denver conference were good and you recommended they be implemented as rapidly as possible.

Mr. Peterson has asked me today to review with you actions taken in this respect since our meeting of a year ago. These actions have involved not only the Soil Conservation Service, but also the programs of the other Department agencies that have a bearing on soil and water conservation. I will do my best to summarize all of them for you. I want to take this opportunity to express my appreciation to the other agencies for the materials they supplied to me for this report.

The first action taken was to crystalize the recommendations of the Denver conference into a coordinated conservation program for the Great Plains. The President submitted the coordinated program to Congress in January of this year.

I should like to comment that as a government program, this one is quite unique. It is not, in itself, an authority for actions. Rather, it is grouping together of a wide variety of authorities to bring them all into focus simultaneously on the problems that confront individual farm operators on the land. It is really a program for coordinating the efforts of various groups and agencies.

The Great Plains Conservation Program is a long range program. The goal to be achieved is a more stable agriculture, more dependable sources of income, and progressively satisfactory livelihood for the people of the region. To achieve this goal, there must be widespread use of good soil management and water conservation practices and adjustments in sizes and types of farm which will enable farmers and ranchers to effectively cope with the climatic hazards of the region. A long time program of planned soil and water conservation measures and land use adjustments will be worked out by individual producers in accordance with the capabilities of each farm and ranch. The resources of federal, State, and local government and private groups will be focused so as to help the producer develop and apply his long range conservation plan for his land.

One thing essential to its success is a complete understanding of the objective and coordinated teamwork on the part of all concerned--farmers, landowners, civic and agricultural groups, private industry, and local, State and federal agencies of government--in order to translate the program into action to create a more stable economy and for maximum benefits to all the residents of the Great Plains.

In the Soil Conservation Service we are continuing to intensify our soil survey activities in the Great Plains. The soil survey provides an inventory of the soils and is basic to the development of the land capability classification to determine its proper use and management. Additional experienced personnel have been added to the present staff to complete the survey in the critical wind erosion areas as rapidly as possible. This survey work is being concentrated first on the remainder of the crop land in the critical wind erosion areas.

We are also providing additional technical assistance to soil conservation districts within our available resources to step up the planning and application of conservation measures on the land. Some additional technicians are being added in those districts of the Great Plains where farmers and ranchers have made requests, and where such help is necessary to accelerate other State and Federal programs.

Funds appropriated to SCS for the 1957 fiscal year included an increase of $724,165 for more soil survey and on-the-farm technical assistance primarily in the Southern Great Plains. We are, therefore, this year able to step up activities to that extent.

SCS is also furnishing the needed technical assistance in the conservation activities of other agencies such as FHA credit and ACP cost-sharing.

The Extension Service reports that educational work in the Great Plains area is being intensified more adequately to encourage farmers and ranchers to adopt and use those practices which will contribute most to the long time stability of agriculture in the Great Plains area. Likewise, efforts are being made to encourage those in the area to study the nature of the major problems involved, their most practical solutions, and the significance of proper solutions to the welfare of the area and the Nation, in order that individuals and groups in the area may be better equipped to contribute to sound solution of the problems involved.

Of the funds available to the Department for allocation to the States in support of cooperative extension work on the basis of special needs, $419,300 was provided in fiscal year 1956 to strengthen extension work in the Great Plains States. This amount represents one-half of the amount available to the Secretary for allocation on special needs.

An example of stimulation of agricultural leaders to take a realistic look at their problems and consider solutions growing out of the experiences of local operators is shown by the Great Plains Program planning meetings carried on in Kansas. In 31 counties in Western Kansas, there were 6 committees set up to consider solutions to the problems recognized in the meetings.

In Colorado the program projection effort is concentrated in the 17 Southeast counties where the wind erosion problem is most severe. This is providing a mechanism for farm people to analyze the present situation, develop potentials, study problems impeding the attainment of potentials, and to project needs.

Farm and Home Development work in these same 17 counties is resulting in production adjustments on several farm and ranch units.

Soil surveys in the Plains area are being interpreted by Soils Specialists to County Extension Agents and farmers in one State. In other States, additional extension personnel are working on the problem of wind erosion control, moisture conservation, and on utilization of applicable research.

The Agricultural Research Service reports that, as a result of the recommendations of the 1955 Denver Conference, the Department of Agriculture established a Joint Research Committee on Weather and Agriculture in the Great Plains. This committee has had two meetings to review the existing research in agricultural meteorology and related research dealing with the variations in crop yields and the adaptation of the agricultural business to the variable conditions of the Great Plains. A further meeting is planned jointly between this committee and the research committee of the Great Plains Agricultural Council at Amarillo, Texas, October 18-19.

A cooperative study with the Montana Agricultural Experiment Station deals with the relationship of weather conditions to crop yields. This work has been continued during the past year and new work has been initiated concerning economic adaptation of dryland farming to variations in weather and crop yields. New work has also been started in Colorado on the relation of climatic factors to crop production. Research at Big Spring, Texas, has been summarized and a manuscript prepared on the "Relationships Between Climatic Factors and Yields of Cotton, Milo and Kafir." This summary covers the years 1914 to 1955.

A series of area studies conducted in cooperation with State Experiment Stations in Montana, North Dakota, South Dakota, Kansas, Colorado, and Oklahoma, are designed to explore the adjustments that Great Plains farmers can make to changing market conditions. Specifically, these studies are trying to answer the question--What can Great Plains farmers do with the resources diverted from wheat production and what are the best alternative uses for these resources? Further work will continue on them during the next fiscal year. Additional

phases of these studies will explore the obstacles farmers encounter in making adjustments in their farming situation and appraise methods of overcoming these obstacles.

The research program has been expanded and strengthened in grass and legume breeding and improvement of species adapted to that region including: (1) Development of alfalfa strains resistant to spotted alfalfa aphid and types adapted for pasture or rangelands; (2) fundamental studies of water requirements for establishment of different grasses and legumes; (3) research on more satisfactory methods of range reseeding, including range plant nutrition and water requirements; (4) testing of new grass and legume species; (5) expansion of grazing management research and development of reseeded pastures to supplement or protect native range pasture lands; and (6) seed production, processing and handling of native and introduced grasses in the Great Plains region.

With additional funds available for 1957, new research is being initiated on drought and wind erosion problems, on adapting types and sizes of farms to Great Plains conditions, on maintaining feed and financial reserves, and on tenure, taxation, and crop insurance problems. Research on grass and legume improvement, reseeding, and management will be greatly expanded.

Policies for the Agricultural Conservation Program continue to be for the sharing with farmers and ranchers the cost of installing and establishing those practices which are most enduring and most needed but which are not now a part of their normal farm and ranch operations.

The ACP cost-sharing program on those practices that are intended to bring about those land use adjustments required for a long range program are being accelerated and rates of payment have been made more flexible. Rates of cost-sharing for certain practices have been increased to over half of the cost. The cost-sharing offered for terraces, contouring, subsoiling, strip cropping and water holding and management structures is particularly important in the Great Plains.

The Farmers Home Administration reports that during August, 1955, the Secretary authorized a broad emergency credit program under the provisions of Public Law 38, as amended, to supplement the credit available through private and governmental sources to eligible farmers and stockmen in the 145 designated Great Plains counties in six States.

Under this program, assistance is available in the designated area to eligible applications to (1) enable them to make needed adjustments in their operations and to develop sound farm management programs that are consistent with the long range agricultural program for proper land use in the area, and (2) meet essential operating expenses.

The emergency loan authorities in the Great Plains area are used only when it is determined on an individual case basis that the credit needs of the applicant cannot be met through other established sources, including both private and cooperative sources of credit and the regular programs of the FHA.

All credit programs administered by FHA in the designated counties of the Great Plains area have been geared to the objective of helping eligible farmers and stockmen in this area to make needed adjustments for proper land use; to establish a sound and stable system of farming; and to prevent the continued destruction of the land resources of the area through erosion and abuse. Operating and real estate loans, as well as soil and water conservation loans, under the regular lending programs of FHA are available to eligible farmers and stockmen in all areas. The increased authorization for both operating and real estate loans under the Bankhead-Jones Farm Tenant Act this year, and the broader authorities provided through recent amendments to this Act, will enable FHA to serve better the credit needs of farmers and stockmen in the Great Plains area.

From September 1, 1955, through August 31, 1956, a total of 6,628 initial loans of all types were made by FHA in the 145 designated Great Plains counties in the amount of $28,778,562. Subsequent loans to indebted borrowers during this period amount to $12,803,763. The total of all loans made during this period amounted to $41,582,325.

The Federal Crop Insurance Corporation reports that changes have been made in the wheat crop insurance contract designed to encourage insured farmers to plant cover crops early and to refrain from summer fallowing the same land more than one year when the winter wheat crop is lost early in the season.

The wheat crop insurance regulations formerly provided for a reduction in coverage of 50 percent in all wheat insurance counties for land released and planted to a substitute crop. This provision drew considerable criticism in the Great Plains area subject to excessive wind erosion. Soil conservationists indicated that this provision discouraged wheat growers from planting emergency cover crops on wheat land after the crop has been destroyed in order to secure the unharvested or 90 percent coverage. As a means of alleviating this situation, a provision has been added to the 1957 wheat regulations whereby in certain designated counties only the unharvested and harvested stages of coverage will be provided. At the present time, 19 counties located in areas subject to excessive damage from wind erosion have been designated as counties in which coverages are limited to the harvested and unharvested stages.

In order to discourage the practice of summer fallowing the same land more than one year when the wheat crop is lost early in the season, the Federal Crop Insurace Corporation beginning with the 1957 crop year

will refuse to offer summer fallow coverage on such acreage. This provision is applicable in all wheat and multiple crop insurace counties subject to serious damage from wind erosion.

In addition, the Federal Crop Insurance Corporation has instructed regional underwriters to designate as non-insurable all Class VI and VII land for wheat crop insurance. This will encourage farmers to adopt better land use practices on such land.

Inasmuch as crop insurance must operate on a sound businesslike basis, it has been necessary to cancel wheat or multiple crop insurance programs in 14 counties located in the southern and central Great Plains. Experience indicates it is impossible to offer crop insurance in these counties on an unsubsidized basis. In other counties in this area, it has been necessary to make rather drastic upward revisions in premium rates in order to place the insurance program on a sound actuarial basis.

Another item to be reported is legislative action which was taken since this Committee last met. In your discussions last year considerable emphasis was given to the fact that a period of years is often necessary in the Great Plains area to make needed land use adjustments.

Considerable point was made of the fact that the ACP is annual offer to farmers and ranchers for cost-sharing "practice by practice." It was pointed out that there is need for cost-sharing on conservation problems that can be taken up for a farm or ranch in its entirety over a period of several years. There is need for operators to be assured of continuing assistance as they move forward in the installation or inauguration of the various segments of their long term conservation plan developed for their operating unit.

Since you last met, the Department of Agriculture proposed legislation which would give the Department authority for this type of conservation cost-sharing for the Great Plains States. That legislation was passed by the Congress and signed into law by the President.

The Secretary of Agriculture is now authorized to enter into long term conservation cost-sharing contracts with farmers and ranchers in the Great Plains area providing for changes in land use and other measures for soil and water conservation.

I can best describe the provisions of this new legislation by reading to you from the Senate Committee Report on it.

"The provisions of the bill will apply to farmers and ranchers in counties designated by the Secretary as susceptible to serious wind erosion in the following 10 States: Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wyoming. Within the designated area the Secretary of Agriculture will

be authorized to make contracts of not to exceed 10 years with agricultural producers for the gradual adoption in an orderly manner of changes in their cropping systems and land use which are needed to conserve the soil and water resources of their farms and the area generally. The termination date of such contracts shall be not later than December 31, 1971.

"Each contract will be based upon a plan of farming operations and a schedule of proposed changes in cropping systems and land use designed to bring into operation desirable conservation practices and adapt the farming operations to a system best designed to protect the farm or ranch from erosion and deterioration by natural causes. In the contract the producer will agree to carry out the program in accordance with the plan and schedule agreed upon, and not to adopt any practice specified as tending to defeat the purpose of the contract; and to forfeit all rights to further payments, and refund to the United States all payments or grants received under the contract, upon a substantial violation thereof or upon transfer of the producer's right and interest in the farm or ranch, unless the transferee agrees to assume the obligations of the contract.

"In return for agreement by the producer, the Secretary will agree to share the cost of carrying out the conservation practices set forth in the contract. Evidence presented to the committee was that the proposed Government share of the cost will average approximately 80 percent. The bill also provides, under circumstances detailed in the Department's letter, for preserving farm history of allotted crops during the transition period.

"The bill authorizes to be appropriated without fiscal year limitation a maximum of $150 million for the entire program, exclusive of administrative costs, but provides that not to exceed $25 million of such funds may be expended on the program in any one year. The special program authorized in the bill is to be in addition to, and not in substitution of, other programs in the area, such as the ACProgram, the Soil Conservation Service program, or the Soil Bank."

As you can see, this new legislation provides the Secretary with authorization for this new type of conservation cost-sharing in the Great Plains, but it does not appropriate the funds for carrying it out.

Plans are now under way in the Department to request appropriations for this activity when the next Congress convenes. I personally hold a strong opinion that authorization for this phase of the Great Plains Conservation Program offers great hope for helping farmers to move ahead much more rapidly with all phases of their conservation job in a coordinated manner.

SOIL AND WATER CONSERVATION RESEARCH

C. E. Wadleigh, Chief, Soil and Water Conservation Research Branch
Agricultural Research Service

We are pleased to report substantial progress during the past year in research on numerous fronts applicable to the manifold problems of soil and water conservation. Substantial parts of the efforts of no less than six of our Research Branches are devoted directly to those problems. Less direct and tangible but, nevertheless, significant contributions are coming from the research carried on by several other Research Branches.

Our current budget provides for considerable increases in the resources being devoted to research on the problems associated with conservation of soil and water. Those problems on which we have not yet been able to undertake adequate research are being given the most earnest consideration in development of budgetary estimates.

Our system of two-way communication between the Agricultural Research Service and the Soil Conservation Service is functioning smoothly and efficiently. Mr. DuMars, who worked so effectively in implementing liaison between ARS and SCS was transferred recently to head the Program Services Branch of ARS Information. He has been succeeded by D. M. Whitt, formerly Research Liaison Representative for SCS and ARS in the Cornbelt states, who comes to this position with 21 years of field experience first in SCS operations as a soil surveyor and later in SCS and ARS soil and water conservation research. Dr. Whitt is a member of the staff of the Administrator, ARS, and reports directly to the Deputy Administrator for Research, Dr. George Irving, Jr.

Dr. Whitt has been succeeded in the Cornbelt states by Dr. Elmer Sauer, who for over 20 years has done outstanding research in the economics of soil and water conservation in SCS and later in ARS in cooperation with the University of Illinois.

Dr. Irving reported to you last year on the procedures for developing the annual research needs report by SCS and the response by ARS to that statement of research needs. Secretary Peterson transmitted a copy of the 1955 Needs Report and a copy of the Response with his letter of February 2, 1956, to you.

We have received the 1956 Research Needs Report from SCS and are presently in the process of developing our response.

In addition to the annual statements of research needs by SCS, we have the benefit of the report prepared last winter by the Research Committee of the National Association of Soil Conservation Districts. This comprehensive study of research needs and the Association's proposed 10-year plan for research in soil and water conservation has been most helpful to our staff in long-range planning.

Incidentally, we were happy to note and appreciate the satisfaction expressed by the National Association of Soil Conservation Districts with our efforts at meeting the research needs in this field of the Department's broad agricultural research program.

You will be interested in the modifications of and additions to the research programs in ARS effected this year to better meet the needs expressed by your Committee, the SCS, and the NASCD.

Major emphasis has been placed this year on research dealing with the management of water. We have materially strengthened our research on channel stabilization, sedimentation, and related problems. Administrator Williams of SCS indicated this as the major item in the 1955 Report of Research Needs. The Congress provided us an increase in funds last year for research on watershed problems. We have greatly expanded our program on sedimentation research in the lower Mississippi River basin. In cooperation with the U. S. Geological Survey we will have approximately 15 professional men working in this area on sedimentation problems. Our program in this field is also being strengthened in New York, Georgia, Oklahoma, and Nebraska.

Contractual arrangements are essentially complete at California Institute of Technology for basic studies on sediment transportation. Preliminary contacts have been made with two institutions in the Northeast to explore the possibility of contracts to study streambank stabilization and sediment problems in the Northeast.

New work on the hydrology of watersheds is being started in the Northern Great Plains and in Vermont. Existing work is being strengthened in Ohio, California, Nebraska, Arizona, Wisconsin, Maryland, and Virginia.

We are accelerating our analysis of hydrologic data from watersheds accumulated over the last 15 to 25 years and portions of the first report are now at the printer. We had 22 man-years on this analysis in Fiscal Year 1956, representing about one-third of the total professional manpower in the Watershed Hydrology Research Section.

Under another accelerated program of analysis of accumulated data on soil and water losses, some results have already been used in joint conferences with SCS and State Agricultural College people. We have copies of the report on one such conference for you. Modifications in supporting-practice recommendations are presently being made as a result of studying these analyses. We were able to complete such analyses quickly by use of punched-card techniques.

In the East, we have enlarged our study on improved methods for controlling erosion and runoff, on building reserves of soil productivity during periods of diversion from surplus crops, on efficient methods of distributing and using irrigation water, on land forming and other management practices for cropland, and on tillage and improvement of compacted soil conditions.

In the West, we have materially strengthened our research on soil and water management in irrigated and dryland areas. In addition, we have intensified research on water conservation and wind erosion control for relief of emergency conditions in the Great Plains wheat areas. We have also been able to give increased attention to saline and alkali problems. Nutritional relationships between soil, plants, and animals are receiving attention. We have expanded our fundamental study of the relationships of plant roots and soil microbes as they affect soil structure and influence infiltration of water.

Research is continuing in the North Central States on the development and improvement of equipment for corn production under humid conditions with the objectives of (1) conserving soil and water, (2) reducing production cost per acre, and (3) maintaining or increasing yields. In the Pacific Northwest, research is being continued on the development of more effective equipment for soil and water conservation farming practices adapted to the heavy wheat straw residues of that area. Current work is directed toward the development of a more satisfactory drill for those special conditions.

At the Tillage Machinery Research Laboratory at Auburn, Alabama, increased emphasis is being placed on basic research to establish the relationships between equipment characteristics and soil compaction and the formation of "plow" and "traffic" pans.

With new funds which became available this year, research on the equipment phases of grassland seeding and fertilization under adverse soil and weather conditions are being expanded. This research is being initiated in the Southeast and in the Southern Great Plains. Each location is to serve as headquarters for cooperation with a number of states.

Some expansion is also planned for research on the harvesting and farm cleaning of difficult-to-handle grass seeds needed for dry lands of the Great Plains.

There are needs for expansion of research on many equipment problems to which the Soil Conservation Service has called attention. Some of the more important are (1) basic relationships between equipment and soil structure, (2) relationship of equipment design and use to the various manifestations of soil compaction, (3) more effective and efficient equipment for subsoiling and subsurface tillage, and (4) more effective specialized equipment for soil and water conservation farming practices under different soil, crop, and climatic conditions.

Our program of plant introduction testing has been intensified. The wide variety of soil and climatic conditions prevailing in Soil Conservation Districts and the efforts at treating each acre according to its needs have multiplied the demand for crops with specific characteristics.

We are also giving attention to important insect problems including insect problems in relation to: (1) water management, especially in

connection with mosquito and other insect problems in irrigated regions, (2) soil management, particularly in relation to rotation practices and methods of applying soil insecticides, (3) general crop improvement programs in which insect resistance to certain pests should be one of the characteristics of improved crop varieties, (4) investigations to determine the importance of insects in the productivity of cultivated and range forage, and (5) role of pollinators in the production of forage crops. With a slight increase in funds and adjustment in emphasis, we have been able to give increased attention this year to the Spotted Alfalfa Aphid menace and to the serious grasshopper problem in the Middle West.

Forage and range research programs have been strengthened. Alfalfa improvement investigations will be expanded during the current fiscal year to develop spotted aphid resistant varieties and to accelerate the development of multiple disease- and insect-resistant varieties for all areas. The spreading habit of alfalfa is under investigation and real progress is being made toward the development of spreading types for grazing purposes.

Clover improvement has been expanded to strengthen existing breeding programs and to initiate the evaluation of various varieties and species for use in high-altitude mountain meadows. Legume seed production research, involving both agronomic and physiologic studies, is being initiated in the Pacific Northwest.

Breeding and pathology research has been expanded on lupines and birdsfoot trefoil in the humid area.

Grass improvement investigations in both the humid and arid regions has been increased with particular emphasis on grasses for the Great Plains and the Southwest. Very satisfactory working relationships are being developed at two SCS Plant Materials Centers, Tucson, Arizona, and Pullman, Washington, where this work is being carried on cooperatively.

Research in grazing management and establishment of forage covers has been expanded throughout the country to determine the best forage combinations and utilization systems for both native and reseeded range and for humid area pasture lands. Evaluation of varieties and species for reseeding range and cutover forest land and of methods of reseeding is being expanded.

Expansion in weed control research is under way. Fundamental weed control research is to be increased at Beltsville, Maryland. In the West, new work is to be initiated on control of rangeland weeds. Particular emphasis is to be given to developing controls for goatweed, larkspur, Medusa head rye, dalmatian toadflax, and other troublesome range weeds in the Pacific Northwest. Aquatic weed control research is to be expanded considerably in Washington, Montana, and Colorado. At these locations, special emphasis is to be given to developing procedures for controlling submerged aquatic and ditchbank weeds which

infest the irrigation systems of the Western states. In the South, new work is planned on the control of aquatic weeds in drainage ditches, canals, and farm ponds, weed and brush control in the "piney woods" grazing areas, and on the control of weeds in improved pastures and rangelands. In the North Central states, research on the control of weeds in pastures is to be expanded.

Research is being expanded on a number of the economic phases and relationships of soil and water conservation. Special attention is being given to economic problems of small watersheds. Economic studies of humid-area irrigation are being intensified. Some studies are being made on returns from land in different uses and from developing land through drainage and clearing.

Research is being increased on water rights problems throughout the Nation. Recently, reports were published on water laws in Delaware, North Carolina, California, Oklahoma, New Mexico, and Nevada. Studies have been started or planned in Illinois, Virginia, and Louisiana.

Other work in production economics research includes assistance in preparation of Department policy recommendations on watershed protection, economic evaluation of watershed plans, measurement of economic results of installed watershed protection projects, and studies of local group management problems and cost-sharing arrangements. Reviews and analyses are made of the economic aspects of resource-development projects of other Federal agencies. Assistance is given to the Soil Conservation Service on River Basin investigations, particularly with respect to special economic studies needed for project evaluations, on the development and testing of evaluation techniques, and on estimates of the benefits of various river-basin programs.

Economic research in the Great Plains is being intensified. Studies are being established in additional areas to appraise production adjustments. Present research on weather-crop yield relationships and economic adjustments to risk and uncertainty in the Northern Plains will be expanded to the Central and Southern Plains. One research project will deal with the risk and uncertainty in ranching operations and ranchers' adjustments to adverse feed conditions. Plans are being made to initiate studies on crop insurance and its effect on stabilizing income of Great Plains farmers. Other studies will deal with minimum sizes of family-operated farms needed for satisfactory income and survival through drought periods in areas with different soils and different crop yield expectancies. Plans also are now being made for a survey of farm ownership and tenure problems in the Plains and a survey of financial and credit conditions among farmers.

We are participating in the Department's Soil and Water Conservation Needs Inventory. Over 40 members of our field staff are participating at the State level.

An important contribution by many of our research staff members, especially those located at field stations, is participating with SCS

technicians and State Experiment Station workers in field trials to apply and adapt research findings under local soil and climatic conditions, or short-term field tests to secure immediate information on local problems.

The procedures for reporting to educational and action agencies of the Department on the progress of our research program are under periodic review. In addition to the Quarterly Report of Progress in Soil and Water Conservation Research and Abstracts of Recent Published Material on Soil and Water Conservation, both of which are sent to you regularly, we are supplying an increasing number of Special Reports and Research Reports on specific subjects of interest. Regular contributions are made by the Research Branches to the monthly magazine "Soil Conservation." We have just submitted the 20th item in the current series. In addition to these regular reporting procedures, a total of about 380 articles and bulletins bearing on conservation of soil and water, and associated plant management and production economics problems have been approved for publications so far in 1956. One function of the five Research Liaison Representatives is to keep SCS staff members informed of progress on research projects of significance for soil and water conservation.

More valuable in many respects than written reports are the numerous joint ARS-SCS conferences, workshops, and training schools. For example, at a meeting with the State Conservationists of the New England states in Boston in March, the need for watershed research in the New England states was discussed, and priorities were established for location of research work when it could be initiated. Later, when funds were available, ARS staff members together with the State Conservationists and State Experiment Stations representatives worked out details of the research to be undertaken and the location for the work.

We recognize the demands for soil and water conservation research are tremendous. As Secretary Peterson said before the House Subcommittee on Agricultural Appropriations, "Assuming the personnel were available and the physical facilities were available I would not know how to put an upper limit on the amount of work that could be done."

In expanding our research program to better meet the needs in soil and water conservation, we want to maintain a balance between fundamental, basic studies and short-term applied research. While recognizing the need to give immediate attention to perplexing questions until the underlying relationships are understood, our larger responsibility is to establish principles which can be applied widely with appropriate modifications to fit local soil, plant, climatic, and economic conditions.

We appreciate this opportunity of reporting to you on the research phases of the Department's program in soil and water conservation, and will value your suggestions.

April 10, 1956

MEMORANDUM NO. 1396

National Inventory of Soil and Water Conservation Needs

The Department has constant need and use for information that can be gained only through a national inventory of soil and water conservation needs. This inventory would equip the Department to more effectively plan and carry out its responsibility in soil and water conservation. From it the Department could arrive at reasonable estimates of the magnitude and urgency of the various conservation measures needed to maintain and improve the country's productive capacity for all the people. The following policies, therefore, are hereby established.

1. A National Inventory of Soil and Water Conservation Needs will be made and kept current by the Department of Agriculture. This Inventory will be developed for each county in the United States and for appropriate subdivisions of the Territories. The goal for initial completion will be three years. The Forest Service has recently completed an intensive survey of the Nation's timber resources. County estimates for forestry, insofar as is possible, will be developed from this timber survey and other available forest resource information.

2. The Department agencies concerned with land use, soil and water conservation and the management of land resources which are to cooperate in this endeavor are: Agricultural Conservation Program Service, Agricultural Research Service, Commodity Stabilization Service, Federal Extension Service, Farmers Home Administration, Forest Service and Soil Conservation Service. Other agencies of the Department will be called upon where they can make a contribution. The Soil Conservation Service is hereby assigned responsibility for leadership.

3. A Department Soil and Water Conservation Needs Committee, comprised of one representative from each of the agencies named in paragraph 2, will be established. This committee, under leadership of a chairman from the Soil Conservation Service, will aid in the development and review of proposed procedures, furnish guidance in the cooperative effort, and make periodic reviews of progress for the information of the participating agencies.

4. A Soil and Water Conservation Needs Committee will be established in each State or Territory. Its membership will consist of representatives who work within the State or Territory for the Department agencies named in paragraph 2. The Soil Conservation Service representative will serve as chairman. The State Conservationist of the Soil Conservation Service will invite representation on the committee from the Land-Grant College, the State Forester, and other appropriate State agencies and groups who may be able to provide assistance and useful data. The State or Territorial committee will develop a plan for making the Inventory, and will submit it to the Administrator of the Soil Conservation Service for review and consideration of the Department Committee and the Assistant Secretary, Federal-States Relations.

5. Data will be developed separately for privately owned and publicly owned land. The Soil Conservation Service will be responsible for collecting basic physical data on soil and water on non-federally owned lands. The Forest Service will be responsible for the adequacy of the physical data on forestry on non-federally owned lands. The Forest Service and other land management agencies will be responsible for making the Inventory on lands under their jurisdiction.

6. Cooperation of State and local agencies, organizations, and groups concerned with soil, water, forest, range and wildlife conservation, utilization, and management will be actively solicited in the development and review of the Inventory. The Department of Agriculture will also seek and encourage the cooperation of other Federal agencies, responsible for land management activities, in the development of data which can be utilized in the National Inventory of Soil and Water Conservation Needs.

A tentative draft of policy and procedure for the development of this inventory was circulated to Committee members. The following items were reviewed.

Basic Economic Framework: The following assumptions are made for administrative use in connection with the National Inventory of Soil and Water Conservation Needs. It is felt that these will provide for greater uniformity and accuracy in the estimates. Specifically, they are as follows:

1. There will be a population increase in the United States for the period 1953 to 1975 from 162 to 210 million.

2. Real incomes will rise 35 to 55 percent per person by 1975.

3. The projected increase in population and moderate rise in per capita consumption of farm products (other than timber) will increase requirements in 1975 to about 40 percent above 1953. With production in excess of utilization in recent years, an increase in farm output of around 30 percent will meet projected requirements.

4. Total acreage of crops, including cropland pasture, will be about 6 percent greater in 1975 than in 1951-53.

5. With this cropland acreage and fuller adoption by farmers of available technical knowledge in crop production, it appears that market demands in 1975 can be met if certain adjustments are made. Significant shifts will be required in the crops grown. There will also be need for shifts in major land uses, including such changes as the clearing, draining, and irrigating of land for cropland and pasture, reforestation of less productive croplands, and loss of agricultural lands to nonagricultural uses.

6. The projected increase of population and growth of the Nation's economy will expand the demand for timber products. The 1975 demand for wood products in total may be as much as 30 percent above 1952 consumption; the demand at year 2000 may be as much as 80 percent above 1952 consumption.

7. To meet these timber requirements, more intensive management of all available commercial forest land will be needed. It will be imperative that commercial forest lands presently nonstocked or poorly stocked be restored to productive condition. The more critical problems will relate chiefly to increasing the growth of softwood sawtimber, the utilization of low grade hardwood, and the improvement of productivity of farm and other small forest land ownerships.

8. Demands for recreation facilities and for wildlife will increase with the increase of population.

9. To meet the water requirements of the increased population, which will be accompanied by expansion of industry, intensified agriculture, and other uses, there will be increased competition for available water supplies. This will result in an expansion of water resource development.

10. Cost of installing conservation measures will continue at about the 1956 level.

11. Landowners and operators will be expected to spend no more on conservation measures than will yield a reasonable return to their capital and labor.

12. Certain conservation measures that prevent serious, permanent loss to soil and water resources may be so much in the public interest as to justify expenditures in an area in excess of returns to landowners and operators, and even to the Nation in the foreseeable future.

13. Public programs of assistance to soil and water conservation will be continued at about the present level.

SCOPE: The Inventory of Needs will be developed for all land (except as covered in procedure statement) in each county in the United States and appropriate subdivisions of the Territories. Within counties or Territorial subdivisions the information and estimates will be recorded separately for privately owned land, federally owned land, and other publicly owned land. County data will be combined into state and national summaries. The Inventory will be developed from basic data regarding:

1. Acreage with various kinds of soil, classified by degree of slope, erosion conditions or hazard, and the impact of water on the use of land.

2. Present acreage of land in various uses -- cropland, open pasture and range, forest (grazed and not grazed), and land in miscellaneous other uses.

3. Present acreage of land in various ownerships and management classes -- land in farms and privately owned land not in farms; state, county and municipal; and federal.

On the basis of these physical data and with due regard to the economic framework as indicated above as to prospective future needs for products and services of land, estimates will be made indicating:

1. The desirable and practicable land-use adjustments that can be expected by the end of the forthcoming 10-year period.

2. The needs (on the adjusted total acreages) for land and water conservation practices, measures, and structures. With regard to water, the needs will include the means for reduction of water damage to land, for more efficient on-site use of water, for disposal of surplus water, for incidental reduction of downstream flood hazards, and (where desirable and feasible) for increasing the water yield from forest or brush-covered land.

3. The costs of installing such land and water conservation measures, practices, and structures.

These estimates will be based on the locally applicable technical information and experience, with due regard to the basic economic framework, recommended standards and practices for conservation, and development of soil, water, pasture and range, forest, recreation, and wildlife resources.

This policy and procedural statement is concerned with the portion of the Inventory for which data will be compiled by counties. The inventory of many water management needs which can be met only by organized local, state and federal projects, requires surveys of watersheds or other areas. Such inventory data will be compiled on other than a county basis. The inventory of such water management needs will be covered in a subsequent policy statement.

ORGANIZATION AND COOPERATION: A Department Soil and Water Conservation Needs Committee, comprised of one representative from each of the following agencies, has been established: Agricultural Conservation Program Service, Agricultural Research Service, Commodity Stabilization Service, Federal Extension Service, Farmers Home Administration, Forest Service, and Soil Conservation Service. This committee, under the leadership of a chairman from the SCS, will develop guiding policies and procedures, will furnish economic assumptions, and will make periodic reviews of progress and furnish guidance in the cooperative effort. The Forest Service will solicit the cooperation of state forestry agencies in discharging its responsibility for the adequacy of the physical data on forestry on non-federally owned forest lands.

State and Territorial Soil and Water Conservation Needs Committees will be established. (Hereafter, these will be referred to as State Committees.) Their membership will consist of representatives of each of the Department agencies noted above, including State Agricultural Stabilization and Conservation Committees. The SCS will invite representation on the Committee from the State Agricultural Experiment Station, the State Extension Service, the State forestry agency and from other agencies and groups who may be able to provide assistance and otherwise contribute to the Inventory.

The Inventory will be developed by a committee in each county with supervision, assistance, and coordination furnished by State and Department Committees.

Estimates for public lands will be made by the agencies administering such lands. The Department of Agriculture will endeavor to obtain the cooperation of other Departments who administer land.

The State Committee will develop a work plan for making the Inventory and will submit it for review and consideration by the Department Committee and the Assistant Secretary, Federal-State Relations. Such plan will be developed by the Department Committee. It should establish overall guidance, priorities, organization and responsibilities for making the Inventory in the counties, including procedures, standards and criteria. This should achieve comparability in methods of estimating measures and unit and total costs of carrying out conservation work in similar areas within the State. County Inventory data will be reviewed by the State Committee. State Inventories will, in turn, be reviewed by the Department Committee.

REVISIONS: The goal for initial completion of the National Inventory of Soil and Water Conservation Needs will be three years. It is to be kept current; therefore, periodic review of the information and revision will be made as needed.

AGRICULTURAL CONSERVATION PROGRAM

Paul M. Koger, Administrator
Agricultural Conservation Program Service

I am happy to have this opportunity to represent the Agricultural Conservation Program Service in a meeting with your Committee. This is a most helpful and productive way to consider fundamental programs and approaches to the Department's total effort in soil and water conservation.

Our Service appreciates your discussions and the counsel you gave us on the Agricultural Conservation Program in your meeting a year ago. We invite your frank comments and viewpoints again at this meeting and at any time, on the best methods of accomplishing the objectives of the conservation legislation and programs under which the ACP Service has responsibility.

We are providing you with a short report on developments in and related to the Agricultural Conservation Program since your previous meeting. Also, there are available here additional copies of our interim statement, with attachments, which was compiled at your request and furnished to you last January.

You will see on the first page of our new report a list of the subjects which we have developed briefly in it. I want here to refer to only a limited number of those matters in order to point up certain facts or conditions concerning them.

First, in carrying out our regular ACPS responsibilities for the Agricultural Conservation Program and in helping to do several additional assigned jobs of a closely related nature, we have kept clearly before us certain feelings expressed by several of you last year. We have been mindful of the distinction between the stabilization features and the conservation features in the Department's programs with which we are concerned. And we have tried to be sure that ACP cost-sharing especially encourages enduring conservation systems of farming and remains distinctly conservation cost-sharing and does not become income supplement payments.

In our dealing with farmers and others, we have continued to emphasize some things that ACP <u>is</u> (as one of the USDA conservation services) and some things that it is <u>not</u>.

ACP: (1) <u>Is</u> a means of getting, in the public interest, more conservation on individual farms and ranches than would be possible were the owners and operators to depend entirely upon their own resources. It also encourages the farmer to commit his funds <u>now</u> to conservation work needed <u>now</u>.

(2) Is a program to which participating farmers contribute in two ways: (a) As taxpayers, they pay part of the Government's cost-share, and (b) they pay a substantial portion of the cost of practices, contribute their own labor, and often use their own equipment.

(3) Is a democratic process. Most of its local planning and operation is in the hands of committees of farmers who have the counsel of local agencies and organizations having conservation responsibilities. (These locally elected farmer-committeemen are due much credit for their devoted and able service.)

ACP: (1) Is not a handout or a program to supplement income.

(2) Is not a production adjustment device. But it can and does supplement production adjustment by increasing conservation on acres taken out of production.

(3) Is not a farm plan. But it can and does help carry out farm plans for better use and conservation of soil and water.

(4) Does not consider getting practices established as the end result - rather as a necessary means for getting conserving systems of soil and water management and use into effect.

Some of our specific actions and problems may be outlined as follows. To these matters we are giving continuing attention. Also, in some of these we especially need your counsel and advice.

1. Adapting ACP to Changing Program Needs

Each year we go to State and county groups who have direct or advisory responsibilities for ACP for advice on program policies and provisions. (The agencies and organizations involved are shown in Sections 4 and 5 of the 1957 ACP National Bulletin which are available here.) As you would expect we get many varying and sometimes even conflicting viewpoints.

For example:

a. Some would rigidly restrict the types and applicability of practices offered nationally or in a State or county; others would provide for meeting more problems, with greater latitude for individual approvals in the hands of the local technicians and committees.

b. Some would omit certain practices, others insist on retaining them; some would tighten specifications on certain practices, others recommend liberalizing the same practices. Some want to keep substantially the same list of practices while others want to add many more practices.

c. Some would hold the level of cost-sharing at about 50 percent of cost for about all practices; others would permit substantial latitude on the part of State groups, better to meet locally recognized or important needs.

Now of course Congressional Committees usually have something to say about those lines. For example, the conferees handling the last appropriation act said: "The Department is urged to review and modify its requirements on conservation practices to encourage farmer participation, and institute changes in practices to liberalize the program."

We found, too, particularly in the case of some practices, that the public's investment in conservation was not being protected (a) by the farmers' reestablishment, at their own expense, of conservation practices for which they had once received cost-sharing, or (b) by more than the usual maintenance effort where cost-sharing recently had been offered only on a strict initial establishment basis.

Growing out of those findings, and with full consideration of the urging of many field office representatives and Congressional directives, a program that appeared to be most in the national interest was authorized for 1957. Provision was made to authorize cost-sharing (1) for measures which near the end of the usual life span of the practice, will materially lengthen its effective life, and (2) to replace a practice which has served its life span. In both instances such cost-sharing is conditioned upon two things: First, the farmer's having performed reasonable maintenance care, and second, upon the county committee's determination, after taking into account the conservation problems not yet dealt with on the farm, that appropriate replacement would merit and require public cost-sharing. These are the substantial changes in program principles for 1957 as compared with 1956. Many proposals received for local adaptation of the program are fully consistent with program principles and can be initiated without delay.

2. Moving Toward More Enduring Conservation Systems of Farming

During recent years, particularly since 1953, the ACP has emphasized the use of available cost-sharing in this setting: It should help establish sounder systems of soil and water conservation which will give more enduring protection of the agricultural resource and will maintain or improve its productivity during reasonable use. To give extra encouragement and incentive for adopting such a system, these devices, among others, have been used:

a. An expanded cooperative effort in conservation education and information has been carried out on an interagency basis in States and counties.

b. More technical services, such as engineering and forestry services and soil testing, have been made available to help farmers install practices for which they have requested ACP cost-sharing. Over $6 million of ACP funds, in addition to funds from other Services, were devoted to that use in 1955.

c. Higher rates of cost-sharing were authorized nationally and offered locally on several of the more urgently needed enduring types of practices from which returns to the farmer or rancher are slowest to accrue.

d. In many cases, parts of county allocations were earmarked by county committees to give special encouragement to practices which the county advisory group felt should be emphasized.

e. In some counties, limitations were established on the amount or percentage of county funds which would be authorized for some of the practices in more general use. Several such practices have been dropped out of the program or restricted in their applicability, either nationally or locally.

f. Particular encouragement was given to group enterprise projects through pooling agreements, to provide cost-sharing for enduring types of practices of community benefit. Parts of some county and State allocations were set aside for this purpose. The Department sought and Congressional approval was given for a much higher ACP payment limit for a person in such cases.

Despite these various incentives, with respect to several practices and in many States, a desirable level of performance of many urgently needed enduring types of practices has not materialized.

Even though there has been more interest in the group enterprise type of practice and about double the extent of use in 1955 as compared with 1954, still less than one percent of the ACP payments in 1955 was used for practices in pooling agreements.

Experience for the last three years has demonstrated that, taking certain practices out of the ACP offer, or restricting cost-sharing alone on certain practices, has not caused farmers to undertake the application of enduring types of practices to any substantial extent, even when the extra encouragement and incentives referred to were provided.

It is obvious that the cost-sharing offer alone does not insure farmer willingness to invest his resources in the more enduring practices to the level needed. Something in addition to the usual cost-sharing approaches (either positive or negative) is required.

We recognize that ACP can serve its intended purpose best only when other conservation services are also best serving their purposes, and such efforts are coordinated. The ACPS has, therefore, given particular attention for two or three years to developing an interagency understanding of the various services. We have done this through interagency meetings to develop the ACP and through field contacts with Federal, State and local groups.

3. ACP Operations and Accomplishments

Now I don't intend to leave the impression that we have only problems in the ACP. We can point to some very solid accomplishments. State reports on 1955 ACP performance have not been fully summarized, but substantially

complete figures show, as listed in our written statement to you, that program accomplishments have swung upward over 1954 when our program funds were less.

A few of the practices for which farmers used cost-sharing assistance to carry out a substantially larger extent in 1955 are: Constructing diversion and spreader terraces, establishing stripcropping, control of competitive shrubs on range and pasture, tree planting, and the establishment of vegetative cover.

On the other hand, there was only a small percentage gain over 1954 in the case of conservation drainage, constructing standard terraces, and establishing permanent sod waterways, while there were fewer units of storage dams and reservoirs and of leveling land to conserve irrigation water and prevent erosion.

Over all, the program was used on farms representing over one-third of all farmland. It is estimated that about 20 million acres were directly benefited by these practices. This acreage included the establishment of about 13 million acres of grass and legume cover and trees.

During the 20 years of the ACP, about 1-1/2 million acres of trees have been planted and about 1-1/3 million dams and reservoirs constructed with ACP cost-sharing on privately owned farm land. Individual practice data for some of the major conservation measures receiving ACP cost-sharing are shown in our written statement.

A recent report by the States indicates there will be more than a 15 percent increase in farms participating in ACP in 1956 as compared with 1955. These preliminary estimates are being supported by the fact that a sharply increased number of States have found it necessary to start their 1957 program and begin committing 1957 practice funds this summer and fall (as legislation permits them to do) to prevent a serious break in the conservation efforts of their farmers and ranchers.

Despite this trend, there is evidence (based in part upon a review made late in 1955 in 241 representative counties, with one or more in each State) that a rather large number of farmers - particularly low-income farmers - in most areas of the country rarely if ever do any direct soil and water conservation work. Another substantial number are known to do conservation work, particularly the more expensive, enduring kind, on only an intermittent basis - activity in some years and none in others.

A large percentage of the extensive water storage constructed and cover established with ACP cost-sharing provides direct or indirect benefits for fish and wildlife. The program encourages such multiple benefits where they are possible. We recognize that solving soil and water conservation phases of certain agricultural problems may bring about some conflict with certain phases of wildlife conservation. Generally, the landowning farmer or rancher will decide upon his course of action after weighing the limited benefits from (and oftentimes the problems associated with) the maintenance of habitat for particular kinds of wildlife, against the economic benefits

of the practices for himself and the consuming public. Where the probabilities of conflict are most likely to exist, specific efforts to resolve the conflicts through local planning and educational efforts, along with alternative approaches to compatible wildlife benefits, are strongly encouraged. Where that approach has been used, constructive results have almost always been obtained.

Each request for ACP cost-sharing provides for an entry on the request sheet showing whether the farmer or rancher has a written conservation farm plan. (This has been in effect for four years, beginning with 1953.) Encouragement has been given to have requests for cost-sharing related to those plans, and a large percentage of participating farmers and ranchers use ACP cost--sharing to make more rapid strides in their admirable progress toward installing the practices recommended in their conservation farm plans.

In recent years much interest has been shown in the use of ACP cost--sharing to help make more rapid progress in conservation work and the related land use adjustments and land treatments being made in various kinds of authorized upstream watershed protection and flood prevention projects.

Farmers who have received special conservation education help through Extension and Vocational Agriculture group efforts have quite generally turned to ACP cost-sharing to help them carry out much more conservation work than they could have accomplished with only their own resources. Perhaps a word is in order concerning conservation efforts other than the regular ACP in which the ACP Service has been engaged to varying degrees in 1956. On the basis of Secretarial assignments related to (a) emergency conservation efforts following several natural disasters such as hurricanes, disastrous floods, and severe wind erosion, (b) the Conservation Reserve Program of the Soil Bank, and (c) the recently authorized Great Plains Conservation Program, our Service is cooperating with other agencies having responsibilities for these same efforts. (In each of these special efforts ACPS has helped formulate the proposed legislation and develop plans for program operations.) We are trying to see that ACP and these newer specialized conservation efforts are coordinated or integrated to the greatest extent possible, to obtain a maximum of the benefits intended by these various items of legislation.

Also the ACP Service is working intensively as a member of the Department's Committee on the National Inventory of Soil and Water Conservation Needs. We have a <u>primary concern</u> in this effort because:

a. Legislation under which ACPS has its primary responsibility is designed to help <u>meet</u> conservation needs in the public interest and,

b. because of the <u>legislative requirement</u> that ACP cost--sharing funds shall be allocated among States essentially on the basis of their respective <u>conservation needs</u>.

We want the Department's Agricultural Conservation Program to be truly a cooperative conservation program effort in the public interest.

I hope you will freely give us your comments and suggestions on how we can best accomplish the objectives of the conservation legislation and programs under which the ACP Service has responsibilities. We shall welcome questions now and after you have had opportunity to examine our written statement.

Thank you.

PROGRESS WITH SOIL SURVEYS

Charles E. Kellogg, Assistant Administrator for
Soil Survey, Soil Conservation Service

I think all of you understand our Soil Survey program - at least generally. Our purpose is to make soil maps of all rural lands in the detail that is significant to their use and management. Based on studies of the characteristics of the soils shown on the map, and of the results of research and experience, we endeavor to develop for each kind of soil the important alternatives for use and management, and their consequences in terms of production and long-time soil productivity. The user can see from the map the kinds of soil in each field or other tract. He can read from our reports what alternative practices he can follow for optimum sustained production and select the ones most advantageous to him.

Either copies of the field sheets or of the published maps are used as the first step in the development of farm and ranch conservation plans. The technical knowledge about management practices gained through research and experience is thus assembled through the use of the maps as they apply to individual fields and farms.

Any soil map made in sufficient detail for farm and ranch planning also has many other uses. Perhaps most important is the basic use of the soil survey for planning agricultural research - for selecting representative areas and samples of the kinds of soil most needing investigation - and for assembling the results so that they may be specifically applied. Our research programs in the United States must deal with a great many thousands of specific kinds of soil. In this way, soil maps have a vital place in all agricultural research and extension programs. They are the connecting link between research on the one hand, and individual farmers on the other.

Soil maps are also widely used for the appraisal of agricultural land according to mortgage risk and tax assessment.

The increasingly large removal of good agricultural soil each year for urban use is rapidly becoming a critical problem in many parts of the country. Certainly the use of soil maps will increase in zoning arrangements to protect unresponsive soils from uneconomic development and to protect the good soils from loss to urban uses in perpetuity.

It is perhaps unnecessary to detail the many other uses of modern soil surveys in several phases of civil engineering, forestry, and agricultural geography.

In farm planning, of course, we use the most detailed soil maps. For broader scale planning these maps are generalized with the omission of many of the details for use in State, regional, and preliminary watershed planning.

We are in the midst of a considerable change and expansion of the Soil Survey.

For sometime the Department had somewhat different programs in this field. The Soil Survey was first begun in 1899 and continued its work of soil investigation, classification, and mapping on a modest basis through the years, in cooperation with the agricultural experiment stations. Later, with the organization of the Soil Conservation Service, surveys were made for immediate use in conservation planning. During 1952 a study was undertaken to see how these two activities might be combined into one Soil Survey that would serve both the immediate and long-time needs of conservation planning as well as the many other traditional uses of basic soil surveys.

As a result of this study, the two surveys were combined in the Soil Conservation Service and we are now making good progress toward the development of one standard soil survey for all purposes. Since surveys are under way in something over 2,000 counties, and are being used every day in conservation planning work, it will take somewhat more time to convert all the work to one set of standards. But this is being done smoothly and in full cooperation with the agricultural experiment stations and other cooperators and users of the results.

In some of the 2,000 counties, the only mapping is of individual farms, or small groups of farms, for the immediate needs of farm and ranch planning in cooperation with soil conservation districts. But in total we are mapping around 31 to 35 million acres annually, mostly in detail. Already the survey legends have been converted to the standard basis in about 400 of the survey areas, counties or districts. Of these, about 200 are being mapped progressively and are scheduled for publication.

This effort is part and parcel of the general effort of the Soil Conservation Service to speed up the conservation work and, at the same time, to broaden and to make more accurate basic data used by farmers and others in developing efficient systems of soil use and conservation.

As our work progresses, most people see the need of relating all program activities that involve soil and water use and conservation to a common base. This includes important aspects of such Federal programs as the Agricultural Conservation Program; the Soil Bank, the Great Plains program, and similar activities as well as many State and local programs with direct relationship to soil and water use and conservation.

The Report of the Presidential Advisory Committee on Water Resources Policy emphasizes the need to complete the soil survey. It reads, in part, "The nationwide soil classification and mapping program, including publication, should be completed, according to priority of critical need during the next 15 years. This will require an overall acceleration, including State participation, to about twice the current rate."

This report was recommended to the Congress by the President in January, 1956.

The Agricultural Act of 1956, approved May 28, 1956, includes the following as Section 119:

"In administering this title the Secretary shall utilize to the fullest practicable extent land use capability data, including capability surveys as developed by the Soil Conservation Service, and shall carry forward to completion as rapidly as possible the basic land inventory of the Nation."

Thus recently both the executive and legislative branches of the government have given strong emphasis to completing the soil survey.

Thus in the Soil Survey we have been emphasizing two objectives: (1) More completeness and accuracy in our soil classification and in the interpretation of soil surveys; and (2) an increased rate of coverage so that we may have a standard base for guiding agricultural programs rather than the previous historical base or other more general criteria. After all, many argue that since we do need important agricultural adjustments to insure both soil conservation and efficient use, it seems clear that the historical base is not a completely adequate guide.

Last year we used about 8 million dollars for our Soil Survey program; in this fiscal year we plan to use about 8-1/2 million. This sum includes provisions for publication of soil surveys at rates of about 40 to 50 annually.

Although we have held very firmly to the principle of full cooperation with appropriate State agencies, mainly the State experiment stations, State contributions have not kept pace with those of the Department. Some States are giving little help, others considerable.

All the States collectively, are now devoting about three-fourths of a million dollars annually to this cooperative program the results of which are designed to meet their needs as well as those of the Department.

We have carefully considered many proposals for further acceleration. We believe that the job could be substantially completed in about 15 years, with another 5 years allowed for completion of the publication and distribution of the results. Now, of course, by "completion" we mean for soil maps available for all rural land. But obviously there will always be need for continuing investigations and reinterpretations of the soil survey with changes in technology and in economic conditions; and, where these changes are great, we shall have some needs for reclassification and remapping.

The increases in staff would need to be gradually progressive during the next 5 years to permit adequate training for the maintenance of high standards in carrying on the work. Then we should plan a gradual reduction in the last 5 years to the level of the continuous need for soil scientists to maintain the work on a current basis and to supply the technical assistance required for its orderly use and application.

RURAL DEVELOPMENT PROGRAM

P. V. Kepner, Deputy Administrator
Federal Extension Service

This program, proposed by the President and based on a study by the Department of Agriculture, was launched in 1955 but without direct financial support from the Federal Government. Twenty-four (24) States took steps in 1955 to launch coordinated efforts in about 35 counties. However, in only about 15 of these, tangible progress was made, while in the others only preparatory steps were taken.

This year the Congress passed essential substantive legislation, including limited additional appropriations to those agencies of the Department of Agriculture in a position to provide direct assistance. With this additional impetus, 24 States have designated over 50 counties in which coordinated programs will be carried on in 1957. Details, including a list of these counties, progress attained to date, and other relevant matters are included in the report "Progress in the Rural Development Program" submitted by the Secretary of Agriculture to the President in September 1956.

The program envisaged is one which is definitely centered in the States and counties with the Federal Government providing only leadership and assistance. It envisages the informal organization of all resources in these pilot counties into an organized attack on those forces contributing locally to inadequate incomes, inadequate employment opportunities, and other facets, of rural living. These resources include both public and private agencies and organizations as well as individuals.

The program also envisages both direct counselling and assistance to individual farm families currently not enjoying a good American level of living and, on a group basis, the development of additional employment opportunities and improved public services. With individual families engaged in agriculture, but with inadequate incomes, efforts will be directed either to helping them to improvetheir agricultural operations or to help them explore the possibilities of engaging in non-agricultural employment either on a part-time or full-time basis.

Technical assistance on conservation problems will be available from the Soil Conservation Service; special attention to credit needs will be given by the Farmers Home Administration, and the Agricultural Research Service and the Agricultural Marketing Service will be engaged in special research work to help find the answers to the types of problems involved. Through the Cooperative Extension Service, extra personnel is provided locally to render individual family counselling services and to assist the local voluntary committees in their group efforts.

Even without any additional help from the Federal Government, significant accomplishments were attained in 1955. With the extra help available from the Department of Agriculture and anticipated special attention from other

agencies of the Federal Government and their State counterparts in fiscal year 1957, every evidence indicates very significant additional progress will be made.

PROGRESS IN AUTHORIZED FLOOD PREVENTION WATERSHEDS, PILOT WATERSHEDS, AND PUBLIC LAW 566

Carl B. Brown, Director, Planning Division,
Soil Conservation Service

Authorized Flood Prevention Watersheds

The Department of Agriculture is now providing assistance in watershed protection and development under three separately authorized programs. The first of these, in point of time, is the Flood Prevention Program on eleven authorized watersheds. The other two are the Pilot Watershed Program and the Watershed Protection and Flood Prevention Program authorized by Public Law 566, as amended.

The Flood Prevention Program on the eleven authorized watersheds stems from the authority granted to the Secretary of Agriculture in the 1936 Flood Control Act to make surveys and investigations of watersheds and to carry out works of improvement for "runoff and waterflow retardation and soil erosion prevention." Although surveys were made on a large number of watersheds under this authority, Congress authorized improvement programs on only eleven watersheds. This authorization was contained in the 1944 Flood Control Act. These watersheds are shown in green on the map contained in your folder. Operations on these watersheds were started in 1947.

Now, a few statistics on these watersheds and a brief review of the progress to date:

The eleven watersheds, which cover parts of 12 States, contain approximately 30 million acres or 47,000 square miles. The aggregate area is just short of the area contained in the States of Mississippi or New York.

These eleven watersheds have been subdivided for planning purposes into 310 subwatersheds. Of these, 78 subwatersheds have been planned. Works of improvement have been completed or are in an advanced state in 60 subwatersheds. The program in these watersheds consists of all the recommended conservation practices on farms and ranches, fire protection and proper management of national forests, other public lands and privately owned woodlands plus structural measures for land stabilization and flood prevention, including floodwater-retarding structures, improved channels and waterways, stream bank stabilization, major gully control and revegetation of critically eroding areas.

Federal expenditures on this program through June 30, 1956, have been approximately $57.6 million including nearly $900,000 for emergency protection outside of the eleven watersheds. The estimated remaining Federal cost from the same date for completing this program is approximately $263 million. Federal funds available for this program in the current fiscal year are $13,740,000, of which $12 million was appropriated

and the remainder is carried over from the previous year. We have estimated that local people are putting about $2 into this program, mainly for land treatment and easements and rights-of-way for every $3 spent by the Federal Government. At the current rate of $12 million Federal appropriation it would require an average of 22 years to complete this program. The time required in individual watersheds would range from 6 to 34 years.

As of June 30, 1956, almost 49% of the total land area in these watersheds was covered by soil conservation district agreements. Basic farm and ranch conservation plans had been developed for 37 percent of the area covering almost 41 percent of the total operating units. Soil surveys had been completed on about 60% of the area. Some of the conservation practices applied by farmers and ranchers in the eleven watersheds, mainly as a result of assistance under this program, include in round figures: Conservation crop rotation 500,000 acres; contour farming 1,757,000 acres; terracing 57,000 miles; pasture planting 920,000 acres; range seeding 261,000 acres; tree planting 35,000 acres; ponds constructed 41,200; improvement of ponds for fishing 16,200; and wildlife area improvement 315,000 acres.

These conservation practices have been supplemented by construction of structural measures for flood prevention and sediment control as follows: 463 floodwater-retarding structures with an aggregate water-holding capacity of more than 270,000 acre feet; 6,398 stabilizing and sediment control structures; 838 miles of channel improvement; 29 miles of levees and dikes involving placement of 409,000 cubic yards of earth; revegetation with grass and legumes of 91,000 acres and by woody plants of 90,000 acres of critically eroding land that is no longer suitable for sustained agricultural use.

Pilot Watersheds

The pilot watershed program was initiated by the Congress in 1953 when $5,000,000 was added to the 1954 Agriculture Department Appropriation Act to carry out watershed protection and flood prevention improvements on not to exceed 65 small, widely scattered watersheds. This program is carried out under the basic authority of the Soil Conservation Act of 1935 (Public Law 46, 74th Congress). In providing this appropriation Congress directed the Department to carry out these watershed projects in cooperation with local people as pilot projects to demonstrate the feasibility of and gain experience in small watershed operations as a forerunner to basic legislation, which was enasted as Public Law 566 in the following year.

Work is under way on 58 active pilot watershed projects located in 32 States. They are shown in yellow on the map provided to you and listed on the reverse side.

The pilot projects range in size from 2,900 acres to 580,000 acres. They contain a total of approximately 3,355,000 acres and 17,800 farms and ranches.

It was originally contemplated that all projects would be completed within 5 years at a Federal cost of approximately $28.7 million, which would be approximately matched in works or contributions by local people. The effects of drought, depressed farm income and increased construction costs now make it apparent that about one-fourth of these projects will require more than 5 years to complete a satisfactory demonstration. The total Federal cost is now estimated to be somewhat more than $34 million.

As of June 30, 1956, 10,039 land owners and operators, or 56% of those in the pilot watersheds, had become Soil Conservation District Cooperators. Basic conservation plans had been developed by 6,785 cooperators with SCS assistance. During the last fiscal year, the Service provided assistance with Watershed Protection funds to 69% of SCD Cooperators and 368 other farmers, enabling them to apply needed conservation practices on 3,565 farms and ranches in the pilot watersheds which could not otherwise have been serviced. Soil surveys have now been completed on 63% of the total land and 78% of the land in farms and ranches in the 58 watersheds.

Despite the widespread effects of drought and depressed farm income in many watersheds, there was a marked increase in application of most conservation practices in Fiscal Year 1956 over Fiscal Year 1955. Outstanding increases were: conservation crop rotation 35%, pasture planting 85%, pond construction 22%, range improvement 78%, strip cropping 45%, terracing 12%, waterway development 19%, and woodland protection 46%.

Structural measures for watershed protection and flood prevention completed or under contract on June 30, 1956, included: 222 floodwater-retarding structures with an aggregated water-holding capacity of 115,000 acre feet; 1,393 stabilizing and sediment-control structures; 173 miles of stream-channel stabilization; and 14,400 acres of critical area revegetation.

Watershed Protection and Flood Prevention. Public Law 566 Activities

The Watershed Protection and Flood Prevention Act, Public Law 566, was signed by the President on August 4, 1954. The provisions of this Act were modified in a number of respects by Public Law 1018 which was signed by the President on August 7, 1956. Both the amended Act and a description of the specific amendments are contained in the folder made available to you. Our discussion at this time will be confined to the progress made on this program. The new amendments will be discussed later.

Public acceptance of and response to the small watershed program authorized by Public Law 566 could hardly be said to be other than overwhelming.

At the grass roots level, local organizations in 46 States have submitted 576 applications for assistance to the Soil Conservation Service after obtaining State approval of each one. The number by States is shown in a tabulation contained in your folder. Several hundred additional applications are now before State agencies for approval or in the process of formulation. The impact of the amendments to Public Law 566 has not yet been felt, but is expected to result in a material increase in the number of applications. In some States local organizations are so concerned with the early development of watershed projects that they have made available funds or help sufficient to cover part or all of the cost of watershed planning.

The States are giving wide recognition to the small watershed program. The Governors of all 48 States have designated State agencies or established committees to review and approve watershed applications. Twenty-seven States have enacted 48 different laws designed to strengthen and improve State and local participation in the small watershed program. A summary of these Acts is contained in your folder. Several States have made appropriations or granted funds to assist in planning and carrying out watershed projects.

At the Federal level, the President has issued Rules and Regulations concerning the operation of this program, as required by Public Law 566. It is not expected that these will be revised at this time because of the amendments. The Secretary of Agriculture has issued a revised Policy Statement (included in your folder) following enactment of the amendments. The SCS is rapidly revising the Handbook containing procedures for carrying out the program. We hope to have most of the revisions available to our field offices before the end of this month. All of these, of course, are being reviewed with other directly concerned Federal agencies such as the Forest Service and Farmers Home Administration. FHA is now developing procedures for servicing the loan provisions of the amended Act.

SCS has authorized 40 planning parties to assist local organizations in developing their watershed plans. Recruitment and training for these parties has been nearly completed. The party personnel consist of Engineers, Hydrologists, Economists, Geologists and aids, who work as a team with Soil Conservationists, Soil Scientists, and other technicians in our area and work unit offices as well as Foresters and other specialists of the Forest Service in helping local organizations to develop their watershed plans.

The Service has also entered into Memoranda of Understanding or made similar arrangements for cooperation in this program with the Agricultural Research Service, Bureau of Land Management, Bureau of Indian Affairs, Fish and Wildlife Service, Geological Survey, and Weather Bureau.

To date, SCS has authorized planning assistance on 208 watersheds in 45 States. Planning has been completed and projects authorized for Federal assistance in 31 watersheds. Supplemental agreements have been or are being developed on all of these watersheds under the terms of the amendments. It is estimated that the Federal cost on these watersheds this year will be about $3.3 million.

Funds appropriated for planning through this fiscal year amount to $9.5 million. We estimate that somewhat more than 100 watersheds should be in operation by the end of this fiscal year. Federal funds appropriated for works of improvement through this fiscal year amount to $5,288,000.

The average total cost of improvements in the first 30 watersheds planned is $35.6 million or an average of $1.2 million per project. The Federal part of this cost, which has not been finally determined under the amendments, probably will be between $18 million and $19 million. Based on the data from these projects adjusted to current costs under the amendments and somewhat increased average project size, we estimate the future Federal obligation per project will be somewhat more than $800,000 or about $125,000 per project per year. The projects will have a wide range in total Federal costs, however, probably from less than $100,000 to more than $5 million.

The projects authorized for operations to date will include 265 floodwater-retarding structures, 157 miles of channel improvement and various other types of structural measures in addition to the needed land treatment. They will require from one to ten years to complete with an average project period of six years.

MODIFICATIONS OF THE WATERSHED PROTECTION
AND FLOOD PREVENTION ACT (P.L. 566, 83rd CONGRESS)
WHICH WOULD BE MADE BY H.R. 8750

These modifications would:

(1) Broaden the definition of works of improvement to include measures not only for agricultural purposes as presently authorized by Public Law 566, but also for non-agricultural purposes such as municipal and industrial water supplies and streamflow regulation.

(2) Increase to twenty-five thousand acre-feet the total capacity provided by any one structure which may be included in a watershed work plan, but retain the existing five thousand acre-feet limitation on the capacity provided by any one structure for flood prevention purposes.

(3) Exempt from review by other Federal agencies and from transmission to the Congress watershed work plans involving an estimated Federal contribution to construction costs of $250,000 or less and not containing any single structure which provides more than twenty-five hundred acre-feet of total capacity; and change from 60 to 30 days the period for review by the Secretaries of the Army and of the Interior of plans, where required, before their transmission to the Congress through the President.

(4) Require watershed work plans transmitted to the Congress to be approved by resolutions of the Committee on Agriculture and Forestry of the Senate and the Committee on Agriculture of the House of Representatives as a condition to the appropriation of funds, except that plans involving any single structure of more than four thousand acre-feet of total capacity would require the approval of the Public Works Committees of the Senate and House of Representatives instead of the Committees on Agriculture.

(5) Eliminate the fifteen-day waiting period after watershed work plans are transmitted to the Congress.

(6) Provide for the preparation of plans and estimates necessary for adequate engineering evaluation.

(7) Provide for allocations of costs to the various purposes.

(8) Require local organizations to bear such proportionate share of the costs of installing works of improvement for irrigation, drainage, and other agricultural water management as is determined by the Secretary to be equitable in consideration of the direct identifiable benefits.

(9) Require local organizations to assume all of the cost of installing works of improvement for purposes other than flood prevention and agricultural water management.

(10) Require the Federal Government to bear the entire construction cost of works of improvement applicable to flood prevention and features relating thereto.

(11) Provide that water users, as well as landowners, shall acquire needed water rights.

(12) Provide that local organizations shall submit to the Secretary satisfactory plans for repayment of loans or advancements.

(13) In respect to projects including structures providing for municipal or industrial water supplies, require the local organization to secure private engineering services satisfactory to the Secretary for such structures.

(14) In connection with projects not providing for municipal or industrial water supplies, give the local organization the option of either securing private engineering services or using the engineering services of employees of the Federal Government.

(15) Require the Secretary to reimburse the local organization for the cost it incurs for private engineering services.

(16) Authorize the Secretary to contract for private engineering services for local organizations.

(17) Authorize the Secretary to make advances to local organizations to pay for private engineering services not to exceed five percent of the estimated total cost of works of improvement.

(18) Authorize the Secretary to make loans or advancements to local organizations to finance local costs for periods of up to fifty years at the Federal long-term borrowing rate, with provision that no such loan or advancement shall exceed five million dollars for any one project.

(19) Extend the provisions of Public Law 566 to Hawaii, Alaska, Puerto Rico and the Virgin Islands.

(20) Make the proposed amendments applicable to projects with respect to which the Secretary has previously become authorized to participate in the installation of works of improvement.

(21) Provide that any watershed work plans with respect to which the Secretary has previously become authorized to participate in the installation of works of improvement or which have been previously approved by Congressional Committees under Public Law 566, need not be resubmitted to Congressional Committees under the provisions of the proposed amendments.

POLICY OF THE SECRETARY OF AGRICULTURE FOR THE ADMINISTRATION OF THE WATERSHED PROTECTION AND FLOOD PREVENTION ACT (P.L. 566 - 83d Cong.; 68 Stat. 666), as amended by the Act of August 7, 1956 (P. L. 1018, 84th Cong.; 70 Stat. 1088)

The Administrator of the Soil Conservation Service hereby is assigned responsibility for the administration of the Watershed Protection and Flood Prevention Act (P.L. 566 - 83d Cong.; 68 Stat. 666), as amended by the Act of August 7, 1956 (P.L. 1018, 84th Cong.; 70 Stat. 1088), except that administration of Section 8 of the Act, as amended, shall be a responsibility of the Administrator of the Farmers Home Administration.

The Administrator of the Soil Conservation Service shall discharge his responsibility:

(1) subject to the general guidance and supervision of the Assistant Secretary of Agriculture for Federal-States Relations;

(2) with careful regard for the language of the statute and provisions of the Regulations of the President (Executive Order 10584) applicable to it;

(3) in accordance with the provisions of Title 9 of the Administrative Regulations of the Department of Agriculture; and

(4) in harmony with the policies set forth herein.

The initiative for all projects under this legislation must come from the people of the locality where the proposed project is to be carried out.

The development of maximum initiative and responsibility by local organizations shall be given every appropriate encouragement. Because work to be undertaken has significance only as it relates to the present and future needs of people, careful attention in all cases will be given to the probable effect of any proposed watershed project upon the people to be affected by it.

Work undertaken and performed under this Act is to be to the fullest possible extent in harmony with other work of this Department, of other Departments of the Federal Government, and with work of State and local governments and private organizations.

Work undertaken is to be cooperative with the States, their political subdivisions, or any agency having authority under State law to carry out, maintain, and operate works of improvement authorized by the Act. Cooperative work will be undertaken so as to assure compliance with State laws, and to achieve as fully as possible a coordinated effort toward accomplishing the objective of the Act.

In the preparation and execution of plans for works of improvement, fullest utilization is to be made of all available basic data pertinent to such works including geodetic, climatic, hydrologic, topographic, geologic, soils, land use and vegetal cover conditions. Such data will be utilized where applicable from whatever source it is available.

Assistance rendered will, among other things, be provided on the basis of its contribution toward an adequate water supply for our people, prevention of water waste, reduction of pollution, equitable distribution of available water supplies, prevention of floodwater and sediment damages, diminution of destructive force of water, and its contribution toward an enhancement of resources values in terms of wise use of resources to meet the needs of an expanding economy.

Water laws of the various States and all of the rights of any landowner, appropriator, or user of water from any source shall be fully honored in all respects as they may be affected by activities conducted under the Act.

Works of improvement shall be based on sound economic analysis. Costs shall be less than primary benefits. Benefits are to be assessed with care and are to be clearly creditable to the improvement. Secondary and intangible benefits should not be used for economic justification but may appropriately be used as argument for project justification or proposals for establishing equitable cost-sharing arrangements.

Works of improvement, including both land-treatment measures and structural measures, as may be needed for flood prevention or the conservation, development, utilization, and disposal of water will be planned for all lands within a watershed regardless of their ownership.

Flood prevention is defined as works of improvement installed for the purpose of reducing damage from floodwater, sediment, and erosion thus reducing losses of life, property, services, and other private and public values and which may also result in increased land productivity or enhancement from reduction of those flood hazards. To differentiate flood prevention from drainage on flat lands, the conveyance, control, and disposal of surface water caused by abnormally high direct precipitation or stream overflow is defined as flood prevention.

Drainage is defined as works of improvement installed for the purpose of lowering the water level in areas that under natural conditions are, or would be, swamps, marshes or lakes or in areas where normal precipitation, seepage, tidal action, or excess irrigation water, keeps soil too wet for sustained agricultural use.

The Administrator of the Soil Conservation Service will establish criteria for and assign on a national basis priorities for the furnishing of assistance to local organizations. In establishing such criteria and assigning such priorities he shall take cognizance of the work of other organizations, public and private, in the area of watershed protection and flood prevention.

It is the policy of the Department that there shall be the fullest possible cooperation with local, State and other Federal agencies which have responsibilities in the field of land and water management to the end that there may be a coordinated effort in this field.

Funds available under authority of the Act will be provided only for works of improvement producing direct measurable benefits to groups of landowners, to communities, and to the general public.

Federal assistance for land-treatment measures on land not in Federal ownership shall be limited to technical assistance required to complete the planning and application of such measures during the scheduled period for completion of the project supplemental to other program activities except that for the following measures, when their benefits are determined to be primarily but not exclusively for flood prevention and in excess of their costs, the installation costs may be paid for in part out of appropriations made under authority of the Act and, in accordance with Sec. 3 (4) of the Act, at rates not to exceed those for similar practices under existing national programs: (1) fire prevention and control, (2) critical area stabilization primarily by vegetative practices, (3) minor gully and channel stabilization measures, and (4) special purpose terraces and other on-farm measures used in lieu of downstream flood-prevention structures.

Operation and maintenance of all works of improvement installed on non-Federal land will be the responsibility of the local organization.

On Federal lands the land-treatment measures will be installed, operated and maintained by the agency administering such land. Funds available under the authority of the Act may be used to install, and to operate and maintain during the project installation period, land-treatment measures on Federal lands only to the extent necessary to complete the application of such needed measures provided for in approved work plans during the scheduled period for completion of the project.

The cost of installing, operating and maintaining other works of improvement on Federal land will be shared by the agency administering such land and the local organization in the same manner as if they were installed on non-Federal land in accordance with the criteria hereinafter stated.

After the project installation period, the operation and maintenance of works of improvement, including the cost of management, on Federal land shall be the responsibility of the Federal agency responsible for the management of such land using funds available under authorities other than the Act.

All appropriate agencies of the Department of Agriculture, and it is expected all State agencies, will make available to local organizations to the fullest practicable extent and commensurate with their regular responsibilities such technical assistance and information as may be necessary to development of work plans, installation of works of improvement, and application of land-treatment measures.

Prior to receiving Federal assistance in the installation of works of improvement on non-Federal land, the local organization will:

(1) provide assurance that it can meet the financial obligations involved in the installation of works of improvement as shown in the work plan;

(2) furnish documentary evidence that arrangements have been made to assure the adequate operation and maintenance of such works;

(3) acquire or provide evidence that landowners or water users have acquired in accordance with any applicable State laws such water rights as are needed in the installation and operation of works of improvement;

(4) provide assurance that structural works of improvement will be installed, operated, and maintained in accordance with any applicable State laws;

(5) provide for informing landowners and others participating in the plan and its effectuation of their responsibilities for compliance with applicable State and Federal laws;

(6) provide documentary evidence of acquisition of land, easements, and rights-of-way necessary to the installation of proposed works of improvement; and

(7) submit a satisfactory plan of repayment for any loan or advancement made under the provisions of Section 8 of the Act.

Prior to providing Federal assistance in the installation of works of improvement, the Administrator of the Soil Conservation Service shall approve or disapprove those plans for works of improvement which are not required to be transmitted to the Congress through the President and shall recommend approval or disapproval of those plans which under terms of the Act are to be transmitted to the Congress.

The provisions of Sec. 211 of the Agricultural Act of 1956 (Public Law 540, 84th Congress; 70 Stat. 188) shall apply to any land newly irrigated or drained as a part of a project carried out under authority of the Watershed Protection and Flood Prevention Act.

It is the policy of the Department that the local organization will assume that part of the installation cost of structural works of improvement allocated to the agricultural phases of the conservation, development, utilization, and disposal of water which is equal to the ratio of direct identifiable benefits to total benefits produced by such works of improvement. The local organization will not be required to assume any part of the construction cost or cost of engineering services for structural works of improvement allocated to flood prevention. The local organization will be required to assume all installation costs, including engineering services costs, for purposes other than flood prevention, and the agricultural phases of the conservation, development, utilization, and disposal of water. Where a single work of improvement is planned to serve more than one purpose, an allocation of costs to each of the purposes shall be made, and the local organization shall bear its share of the costs allocated to each purpose in accordance with the foregoing criteria.

If the costs allocated to the local organization for the agricultural phases of the conservation, development, utilization, and disposal of water on the basis of direct identifiable monetary benefits appear inequitable in consideration of intangible or other public non-measurable benefits, such benefits will be taken into account in reaching agreements on cost sharing, but in no event will the Federal share of the cost exceed the equivalent Federal assistance available for other similar project-type programs. Direct identifiable benefits are those benefits accruing to individuals or organizations that would normally be required to pay special assessments or taxes for such benefits.

In accordance with the stipulations and policies herein set forth, the Administrator of the Soil Conservation Service will establish procedures for receiving and approving applications for assistance; determine and define measures eligible for assistance under the Act; establish standards for work plan development, program justification and cost sharing; assign planning priorities on a national basis; inform and cooperate with other Federal agencies in providing authorized Federal assistance; cooperate with designated State agencies or Governors in carrying out their responsibilities; assist local organizations in planning and carrying out works of improvement; prescribe such regulations as may be required for operation and maintenance by local organizations; and take such other action as is necessary to carrying out the provisions of the Act, except with respect to the provisions of Section 8.

The Administrator of the Farmers Home Administration shall be responsible for carrying out the authority to make loans or advancements as contained in Section 8 of the Act. However, no loans or advancements shall be made

under the provisions of the Act until the Administrator of the Soil Conservation Service and the local organization have agreed on a plan for works of improvement and, if required, the plan has been approved by the appropriate committees of the Congress.

The Administrator of the Farmers Home Administration shall discharge his responsibilities with respect to the provisions of Section 8 of the Act:

1. Subject to the approval of the general credit policies for loans or advancements under the Act by the Director, Agricultural Credit Services.

2. In harmony with the policies contained in this statement.

3. Subject to working agreements entered into with the Administrator of the Soil Conservation Service covering the methods to be employed in coordinating the assigned responsibilities of the Soil Conservation Service and the Farmers Home Administration.

Approved: /s/ E. L. Peterson
Assistant Secretary

Date: September 17, 1956

SOIL AND WATER CONSERVATION ACTIVITIES ON FOREST LANDS

Richard E. McArdle, Chief
Forest Service

Good forest land management includes conservation of all renewable sources of that land. Soil and water conservation is one of the important aspects of forest land management. Some activities on forest land may be aimed primarily at control of soil and water; most activities are aimed at some other objective, but in all instances their effect on soil and water must be kept in mind.

Foresters must be concerned in soil and water aspects of forest land management because for the country as a whole forest lands are the principal sources of water for irrigation, industrial, and domestic uses. Water must be considered as one of the main products of forested lands.

The Forest Service has been deeply involved in the soil and water aspects of forest conservation for a long time. It deals with this subject in three main ways: administration of 181 million acres of national forests, cooperation with State agencies and private land owners in protection and management of more than 400 million acres of nonfederally owned forest lands, and research covering all classes of forest land ownership.

When the national forests were established from the public domain in 1897, one of the two main objectives was "for the purpose of securing favorable conditions of water flows." Later, in 1911, Congress provided for purchase of land, especially in the East, for the same purpose. Still further expansion -- to assist private land owners -- was the subject of legislation in 1924 and 1925. About one-fifth of U. S. forest land is national forest. In the West, 21 percent of the total land area is national forest, but from these public lands comes about 53 percent of the water. More than half of the irrigated land and more than 2,000 communities are almost completely dependent on water from national forests; others are partly dependent. This indicates the necessity of keeping constantly in mind the effect of land treatment measures on quality and quantity of water yield. (To illustrate this point, showed map of upper Colorado River and mentioned examples of greatly increased use of national forests for all purposes and effect of this use on water yield.)

Most -- three-fourths -- of U. S. forest land, however, is privately owned. In most instances private forest land owners cannot give water aspects top priority in land management. Timber production is given priority, but in most instances good management for timber production also is favorable for soil and water conservation purposes. One illustration given was harmful effect on both timber production and on soil and water by grazing of hardwood forests. Described cooperation with State agencies in prevention and control of forest fires, in providing trees for planting, and in providing advice and guidance in better forest management.

Forest Service research in watershed protection and management was briefly described. One of earliest experiments was a cooperative project with Weather Bureau at Wagon Wheel Gap in Colorado in 1910. Now have 29 centers for this kind of research. Since last meeting of Committee have established watershed research centers in Central States and in Northeast. Examples were given of the kinds of research projects under way at various experimental centers. This research is applicable to both public and private forest lands.

REVIEW OF WILDLIFE ACTIVITIES IN SOIL AND WATER CONSERVATION THROUGH TECHNICAL ASSISTANCE BY THE SOIL CONSERVATION SERVICE

L. V. Compton, Biologist, Soil Conservation Service

As part of its coordinated program of soil and water conservation, the Soil Conservation Service has always recognized an opportunity and responsibility for wildlife habitat improvement. This responsibility has been recognized by the Congress. From 1935 through 1952, the Service reported upon its activities to wildlife committees in both the Senate and the House of Representatives. The printed reports of these hearings are an important record of the wildlife activities of the Service.

The wildlife work of the Service has been based on the premise that wildlife is a product of the land, and that, like other crops, it must be intentionally produced and managed. The bulk of our hunting is provided by the rabbits, quail, pheasants, and other kinds of wildlife produced on farms and ranches, which comprise sixty percent of the land in the United States. More than 85 percent of our potentially huntable land is in private ownership or control. Thus our wildlife crop is produced and harvested on lands that are used for cultivation, livestock or wood products. Only a small amount of land, mainly in publicly owned refuges and shooting grounds, is used exclusively for wildlife.

Over the years the Service, working through Soil Conservation Districts, has helped farmers and ranchers to do many things that have improved their lands for wildlife. Some of these practices are specifically designed to benefit wildlife while others improve wildlife habitat incidentally as a result of better use and treatment of cultivated lands, pastures, and woodlands.

Among the soil and water conservation practices designed for wildlife habitat improvement are marsh management, odd-area management, and the planting of wildlife borders. It has been estimated that there are about 75,000,000 acres of wetlands which, for various reasons, are impractical of agricultural drainage. Some of this wetland is marshland of a type suitable for the production of fur bearers and migratory waterfowl. The Service is providing technical assistance to farmers in maintaining these and other wetlands and improving their wildlife production. Among the things being done are water-level control, controlled burning, seeding and planting, and regulation of livestock grazing -- all designed to control water and vegetation of optimum wildlife habitat.

Odd areas on farms and ranches are managed and improved as wildlife land. These areas include fence corners, rocky spots, bare knobs, blowouts, sinkholes, borrow pits, abandoned roads, small areas isolated by ditches, streams and gullies, and similar unproductive pieces of land. Odd areas are fenced to protect them from grazing, burning is controlled and when necessary, trees, shrubs and other plants that provide wildlife food and cover are planted. Although odd areas are usually small, they occur on many farms and ranches and total about 10 million acres for the country as a whole.

The strips of land between cultivated fields and woodlands are often unproductive and badly eroded. Shade and competition from the trees make it difficult to raise cultivated crops on such woodland borders but they can be made productive of wildlife -- particularly of bobwhite quail in the Southeast. After considerable trial we have found that the seeds of Lespedeza bicolor are a high quality quail food and that this plant will do well on these border sites. The shruby bicolor is planted adjacent to the trees and the low-growing Lespedeza sericea or various adapted grasses are planted next to the cultivated land. This combination of plants makes the field border a productive wildlife area and protects it against erosion.

For convenience of reporting, we lump the management of marshes, odd areas, wildlife borders and of several other kinds of land into a single practice called wildlife area improvement. During the calendar year 1955, the Service provided technical assistance for 455,000 acres of wildlife area improvement. The total on the land at the end of that year was 3,470,000 acres.

Most all soil and water conservation measures have incidental values to wildlife. Some, however, materially improve wildlife habitat and are worthy of special mention. Among these are living fences, windbreaks and farm ponds.

The living fence of multiflora rose is becoming common and is an important influence on populations of small game. These fences are stock-proof and are used to separate pastures from cultivated fields. They are especially adapted to sites where the fence line must be irregular, as around gullies and along streambanks. Multiflora rose fences provide excellent wildlife cover, and are practical and inexpensive.

Windbreaks of trees and shrubs are valued additions to farms and ranches not only in the Great Plains, but in many other places where farmsteads, crops and livestock must be protected from damaging winds. These lanes of woody vegetation can be very important to wildlife and special attention is given to the inclusion of trees and shrubs that provide food and cover. The 25,000 miles of windbreaks now on the land comprise a major contribution to wildlife habitat on farms and ranches.

Ponds are being built by farmers and ranchers at the rate of about 75,000 a year and more than 715,000 of them have been constructed by soil conservation district cooperators. These ponds have impressive values for wildlife. A study of 91 ponds in Missouri revealed that 90 species of birds and more than 10 species of mammals occurred in the immediate vicinity. Cottontail rabbits were found at 85 percent of the ponds, doves at 65 percent, muskrats at 63 percent and bobwhite quail at 55 percent. A study made in South Dakota showed that in the 39,000 square-mile area west of the Missouri River there were 40,000 man-made impoundments which contained about 100,000 acres of water and which harbored 141,000 ducks. It was concluded that these impoundments have been responsible for a new

breeding population of ducks in that part of South Dakota. These and other examples demonstrate that farm and ranch ponds provide important wildlife habitat, often where there were little or no water areas before.

Farm ponds -- usually built to provide water for livestock, irrigation, fire protection or other farm purpose -- are often used for the production of fish. Technical assistance was provided for 56,000 such fish ponds in 1955. From each of them the landowner can expect to harvest by hook-and-line fishing from 100 to 300 pounds of fish per acre each year.

Since wildlife is produced on lands used primarily for other purposes, effective decisions regarding its increase can be made only by land operators. An important fact, often overlooked or discredited, is that the production of fish and game is an elective to be accepted or rejected, as the land operator desires. Since the bulk of our hunting comes from agricultural lands and much of our fishing is affected by the manner in which these lands are used, farmers and ranchers occupy key positions in the welfare of our wildlife resource. The manner in which they use and treat their lands will determine the success of the wildlife crop. The Soil Conservation Service, working with Soil Conservation Districts, has availed itself of a unique opportunity to favorably influence the production of this much desired agricultural crop. In this phase of its work, the Service has maintained close cooperation with State and Federal agencies, especially the U. S. Fish and Wildlife Service and the individual State Game and Fish Departments.

FOREST WILDLIFE MANAGEMENT IN RELATION TO SOIL AND WATER CONSERVATION

L. W. Swift, Biologist, Forest Service

Much of the wildlife in the United States is associated with forest cover. With exception of antelope, our big game species are usually found in or near forested areas. For the most part, such small game animals as ruffed grouse, gray squirrels, and turkey are forest species. Many furbearers are forest inhabitants, the more valuable ones being the beaver and the marten. Trout are usually associated with forest and mountainous areas.

The importance of hunting and fishing in the United States is illustrated by the "National Survey of Hunting and Fishing" just released by the Fish and Wildlife Service. This survey shows that in 1955 there was a hunter or fisherman, or both, in 1 of every 3 households in the United States. One in every five persons over 12 years of age hunted or fished. During the year these sportsmen traveled 10.5 billion miles and spent 3 billion dollars on matters related directly to hunting and fishing.

The recreational use of national forests and national parks for the year 1955 was about the same; namely, nearly 50 million recreational visits. The interesting thing about this use of the national forests is that one-fourth of the users came to these public lands for the purpose of hunting and fishing. Thus it is clear that a great segment of our population look upon these activities as important forms of outdoor recreation.

The Forest Service and the State Fish and Game Departments maintain very close cooperative relations. The State game and fish laws apply on the national forests and, therefore, the States have important responsibilities in the phases of management that relate to protection of the wildlife species and their utilization through sportsman hunting and fishing. The Forest Service has the important role of land manager, and the national forests are administered on a program designed to maintain and improve the food, cover, and water conditions for the benefit of desirable forms of wildlife.

The vital place of soil, water, and vegetation in wildlife management is well recognized. There must be a place for the animals to live. The national forests provide this basic requirement.

It follows that good soil and water conservation measures are generally good forest wildlife management tools. This is because any maintenance of the soil in place and its support of water conserving vegetation is usually helpful to fish and game. These relations can best be illustrated by a discussion of some forest wildlife management and soil and water conservation relationships.

Deer do best in a managed forest; that is, a forest where wood products are being harvested according to good silvicultural principles. Under such conditions there are areas of uncut and regrowth forests to provide protective cover interspersed with recently cut-over areas where abundant vegetation at the ground level provides food. But sometimes deer numbers become excessive and do damage to the range, particularly the range which is needed during the winter season. Under these circumstances the oversized deer herds will thin out and kill the vegetation and trample the soil. These are undesirable conditions. Both watershed management and big game management objectives would be to restore the vegetation and soil health and bring the deer herds in balance with the food supply. This involves greater harvesting, including the taking of both sexes.

It is a popular concept that the beaver is a great water conservationist and can do no harm. This is, of course, far from true because beaver are also nuisance animals in connection with irrigation of mountain meadows, the flooding of forest areas, and the development of erosion problems where their dams break and release large volumes of water. Beaver are now rather common animals and so nuisance problems are an everyday occurrence in some sections of the country.

To find out more about the place of beaver in soil and water conservation, a study was recently carried out in Colorado. Briefly, this study showed that where a valley grade is 6% or less and where the valley width is considerably greater than the stream channel the beaver dams are highly stable. As the valley narrows and the stream grade increases the erosion potential rises. Any situation where the grade is above 15% and the stream bottom fills the valley, the area is highly unsuitable for beaver. There were also soil relationships in which it was found that glacial till gave good stability for beaver dams whereas dams in shale and sandstone formations were susceptible to failure. Thus, beaver and watershed management would call for a plan-wise approach to foster beaver on some streams, and eliminate them from others.

The tie-up between fish habitat management and soil and water conservation is very close; in fact under most circumstances they are the same. In maintaining productive stream conditions it is necessary to have a healthy watershed wherein the soil is in place and there is a good cover. Where the watershed is not stabilized there will be channel damage and bank washing -- two very harmful developments in connection with fishery management. In stabilized channels insect life becomes established and highly productive. Adequate vegetation on stream banks serves a triple function of (1) holding the bank in place; (2)providing a source of food insects which drop into the water; and (3) maintaining shade that often is the difference between water temperatures cool enough to maintain a trout population and temperatures that are too warm.

The importance of soil and water conservation in fisheries management is illustrated by the action now being taken by some State Fish and Game Departments. A number of States have spent their fishery management funds on forest plantings as a primary measure to restore watersheds before making any expenditures on channel improvement.

In summary then, it seems abundantly clear that there is a close relationship between the objectives in forest wildlife habitat management and soil and water conservation.

COMMENTS ON SOIL AND WATER CONSERVATION

Firman E. Bear

By and large, the people of this country do not realize the rate at which we are moving toward a set of new and very troublesome conservation problems related to our rapid growth in population. In 1956, for the second consecutive year, our population increased by 2.8 million people, equivalent to a new city of 60,000 people in every state in the Union each year. If this continues along the curve of expectation, we shall have over 200 million people by 1975 and more than 300 million by the year 2000.

We are a nation of unprecedented prosperity. We cannot conceive of any more serious troubles ahead than those we have dealt with in the past. So far we have met every emergency, even though we may not have dealt with it on the best basis, as revealed by subsequent thought on the subject. We are a young nation, unsophisticated and inexperienced in the problems that have faced older civilizations than ours. We have confidence in our ability to deal with such problems as they arise. But we shall need a considerable amount of extra wisdom in the years that lie ahead.

The beginnings of these population problems are to be found in the congested areas, such as New Jersey, which, with New York City on the east and Philadelphia on the west, is in the center of a population unit of 15 million people in a land area only a little over one four-hundredth of the total land area of this country. Here we come face to face with competition for land. Large areas of what was once first class farming land have been abandoned to highways, recreational areas, industrial plants, cities, and their suburban subsidiaries.

Two matters stand out prominently in the way of needs to be met at the earliest possible date. There is urgent need for more rapid detailed surveys of our land resources for the benefit not only of the Soil Conservation Service, but to meet the requirements of a great variety of other agencies that want and should have more exact information about the land and the uses to which it is best adapted. The second urgent need is that something be done immediately to develop zoning programs - county, state, and national - by which good agricultural land is reserved for agricultural use, in so far as possible and as long as possible.

I was particularly pleased with Secretary Benson's statement on the work of the soil conservation districts in his address before the Third International Watershed Congress at Lincoln, Nebraska, September 18, 1956. He said:

"We are proud of the Soil Conservation Service and the work it is doing. We are proud of the nation's 2,700 soil conservation districts and the job they are doing. These districts are organized and run by farmers

and ranchers in every state. They are doing a magnificent job. Here is local leadership and initiative at its finest. The elected officers of districts develop and carry out their own soil and water conservation programs. The Department of Agriculture is in partnership with them. We help them do the jobs they cannot do for themselves.

"And soil conservation district leaders are playing a prominent part in the small watershed program. Districts are sponsors or co-sponsors of every small watershed project developed to date. The National Association of Soil Conservation Districts, one of the originators and sponsors of this watershed congress, is giving excellent leadership to the soil and water conservation program in which we all believe. We welcome the advice and counsel of this association."

I am still disturbed by what is going on under the direction of the Agricultural Conservation Program, or ACP. Here we find an annual budget of $250 million, a large part of which is used up in administration and is doing piece-work types of conservation of little or no permanent value. In contrast, the Soil Conservation Service, a service agency that is technically trained to deal with soil and water conservation problems, has a budget of only $67,500,000.

The Hope-Aiken watershed program and the 60 pilot watersheds authorized in 1953 add $17,500,000 for specific pieces of work. The eleven watersheds originally authorized under the 1936 legislation add $10 million more annually. And ACP can contribute up to 5 per cent of its net budget in support of the work it instigates and turns over to the Soil Conservation Service. But none of these units pay their way. So the Soil Conservation Service has a very large part of its time and money tied up in specific enterprises with much too little left over to do the main job for which it was organized, that is, to get conservation on the land.

We should not spend less money on soil and water conservation than is now being jointly spent by ACP and SCS in compliance with the several directives under which they work. But the entire job should be turned over to the Soil Conservation Service. In other words, ACP should be a subsidiary and not an employer of the SCS. For SCS has what it takes in the way of technical training to do the job and the understanding to do it well.

It is my impression that the SCS does not enjoy the public standing to which it is entitled on the basis of work already accomplished. The concept of soil and water conservation, originated in the mind of Hugh H. Bennett. It was carried forward by him with marked success, both before and after the SCS was set up by Federal legislation. And this work is now under the highly capable hands of D. A. Williams and his well-trained associates.

If we admit that the organization of the SCS was a good thing, then why do we treat this agency as a sort of stepchild? We give the ACP

nearly four times the funds to work with. We take away SCS's research arm and put it under the control of the Agricultural Research Service. This is a very worthy agency in itself with plenty of fundamental work to do. But its men are not as well informed nor can they be as well advised on conservation needs as if they were an integral part of the Soil Conservation Service. We have done away with most of the plant nurseries on which the SCS depended for developing its needed material for conservation planting. And we are tending toward separating farm woodlands from SCS study and programming.

I am merely an onlooker who has studied the activities of this agency and examined into the qualifications of its personnel. I have learned to respect these men for their dedication to the cause they represent, and for the excellent program they have developed. No doubt they have made mistakes, collectively and individually. But it is much easier to criticise them for their mistakes than it is to outline a better program than the one they have in operation.

We have gone a long way in our thinking about soil and water conservation. But we will have to go much farther in our thinking and much faster in getting the work done. And there is no agency that I know of that can do this job better than the SCS, with the soil conservation districts and their farmer supervisors who are at the grass roots of the problem.

I would like to make one more comment for the Department's consideration in relation to the Soil Conservation Service. It is highly important that the SCS develop and maintain very close relationships to the agricultural research, extension, and teaching staffs of the several states. I have known some of the problems of personalities and of rivalries that are involved.

One of the most constructive things that could be done toward obtaining the support and confidence of the state agricultural experiment station and college staffs would be to establish a research fellowship on conservation at each of them. A sum of $2,500 a year set aside for use in the investigation of some important conservation problem in every state could be of great value from the point of view of all concerned. I recommend a supplemental appropriation of $125,000 a year to cover the 50 research fellowships in the 48 states, the Hawaiian Islands, and Alaska.

The research fellowship project for each state should be developed by the staff of that state with the help of the state conservationist of the SCS. Once the project has been agreed upon, it should be left to the station staff members to direct it. And the results of these research projects should be made available to the public in suitable published form.